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ORIGINAL ARTICLES

CLINICAL FEATURES OF CORONARY SCLEROSIS*

FREDRICK A. WILLIUS, M.D.

Section on Clinical Cardiology
Mayo Clinic

Rochester, Minnesota

The correlation of clinical data and necropsy findings in cases of coronary sclerosis permits a definite classification of clinical types. The following data are based on eighty-six necropsies disclosing coronary sclerosis.

GROUP 1. TYPICAL ANGINA PECTORIS

Typical angina pectoris occurred in 24 per cent of the cases. This type includes cases in which attacks of retrosternal pain are induced by cardiac overload and in which variable radiations of pain occur. There may be a sense of impending death associated with the attacks. The seizures are usually of short duration, are invariably relieved by immobility, and by the administration of nitrites. The average coronary sclerosis in this group was very marked (3+), and in 66 per cent of the cases some of the vessels had become definitely occluded. In 14 per cent of the cases, myocardial infarction had occurred. Besides coronary sclerosis, 19 per cent of the patients had syphilitic aortitis, and one patient had an aneurysm, about 7 by 9 cm., and saccular in form, just above the orifice of the left coronary, and another patient had a diffuse aneurysm of the arch.

GROUP 2. ATYPICAL ANGINA PECTORIS

By atypical angina pectoris is meant a syndrome consisting of attacks of pain induced by cardiac overload and usually located in the upper abdomen, with a variable radiation of pain, and in other respects resembling the typical syndrome. These symptoms very often lead to confusion with surgical diseases of the abdomen requiring surgical treatment. Atypical angina pectoris occurred in

2 per cent of the cases. In one patient the degree of coronary sclerosis was extremely marked, and one of the coronary orifices was almost completely obliterated by an advanced syphilitic aortitis. One patient had a moderate degree (2) of coronary sclerosis, with slight atheroma, and distinct calcareous changes at the root of the aorta and the aortic valves.

GROUP 3. PROGRESSIVE MYOCARDIAL FAILURE

Cases in this group, in which painful attacks are absent, are characterized by symptoms of a failing myocardium. This syndrome occurs in about 26 per cent of the cases. The symptoms may vary from dyspnea on effort to the typical clinical picture of heart failure as evidenced by orthopnea, cough, cyanosis and anasarca. A small number of these patients have paroxysmal attacks of dyspnea, often independent of cardiac overload, and their symptoms conform to the clinical entity called "angina pectoris sine dolore" by the old clinicians. The average coronary sclerosis in this group was only moderate (2+), and occlusion occurred in only 23 per cent of the cases. Myocardial infarction was present in 14 per cent of the cases.

GROUP 4. ANGINA PECTORIS AND PROGRESSIVE MYOCARDIAL FAILURE

In the cases in this group the symptoms of a failing myocardium are associated with typical attacks of angina pectoris. The clinical differences between Groups 1 and 3 are so striking as to make the creation of this fourth group desirable. This syndrome occurred in 8 per cent of the cases. The average degree of coronary sclerosis in this group was marked (3+), and the incidence of occlusion quite high (57 per cent). Infarction of the myocardium occurred in only 14 per cent of the cases.

GROUP 5. OCCULT CORONARY SCLEROSIS

It is very significant that, in 40 per cent of the cases coming to necropsy, the diagnosis of coronary sclerosis was not made by the clinician. In carefully reviewing the records of the patients, it was found that there was insufficient subjective or objective evidence of heart disease to establish the diagnosis with the usual clinical methods of

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examination. A large majority of the patients were old, in that period of life when degenerative processes are at work. It is important to appreciate the fact that a considerable degree of coronary sclerosis may exist with relatively little cardiac insufficiency or evidence of organic cardiac disease. It is, therefore, always well to consider the likelihood of occult coronary sclerosis when appraising the physical fitness or the surgical fitness of patients in middle or later life. The greater application of special lines of cardiac investigation, such as electrocardiography, is desirable, as very often graphic signs are detected which center attention at once on the coronary arteries. The average degree of coronary sclerosis was moderate (2) and occlusion occurred in only 15 per cent of the patients, the lowest incidence in any group. There was no instance of coronary embolism. The pathologic findings are significant in that the degree of sclerosis is only moderate, and the tendency for a patent sclerosis exists.

ASSOCIATED PATHOLOGIC FINDINGS

The thoracic aorta was diseased in 99 per cent of the eighty-six cases; there were sclerosis, atheroma and ulceration in 90 per cent, and syphilis in 9 per cent. The abdominal aorta was sclerotic, atheromatous and ulcerated in 21 per cent of the cases, and in one case a non-syphilitic aneurysm was present.

The cardiac valves were involved by sclerosis, fibrosis or atheroma in 50 per cent of the cases, while in one case an acute vegetative tricuspid endocarditis was present. The aortic valves were affected with greatest frequency, and the mitral and tricuspid valves in order of frequency.

There was evidence of myocardial degeneration in all cases; this consisted of fibrosis, fatty degeneration, cloudy swelling, segmentation and fragmentation of the muscle bundles. In two cases there were areas of necrosis, and in one case, brown atrophy. Infarction of the myocardium occurred in 8 per cent of the cases.

Disease of the pericardium was found in 9 per cent of the cases, and consisted of chronic adherent pericarditis in four, chronic fibrinous pericarditis in two, terminal fibrinous pericarditis in one case, and obliterating tuberculous pericarditis in one.

Arteriosclerosis of the peripheral vessels was evident in 70 per cent of the cases, and arteriosclerosis of the kidneys in 37 per cent. Cerebral arteriosclerosis was found in thirteen of the fifteen brains examined.

Nephritis was present in varying degrees in 53 per cent of the cases.

It is interesting to note that there was disease of the gallbladder in 26 per cent of the cases; this increases the difficulty many times in differentiating the atypical type of angina pectoris from disease of the gallbladder. The co-existence of disease of the gallbladder and angina pectoris must always be considered when there is a question of surgical intervention.

The association of hypertension and coronary sclerosis is generally considered a very unfavorable combination, especially in patients subject to attacks of angina pectoris. The added load cast on the heart by a well advanced hypertension is considerable, and obviously enhances fatigue and degenerative changes of the myocardium. The myocardium in the majority of cases of coronary sclerosis is already the seat of disturbances in nutrition, and any added insult undoubtedly increases the rate of progression and the degree of structural damage. Hypertension was present in 31 per cent of the cases in this study; in 43 per cent of the cases of typical angina pectoris; in 55 per cent of the cases of progressive myocardial failure; and in 18 per cent of the cases of occult coronary sclerosis. The average systolic pressure in the whole group was 183, the average diastolic pressure 111, and the average pulse pressure 72.

The frequency of the association of obesity and degenerative cardiovascular disease prompted particular inquiry into this relationship, with special reference to sclerosis of the coronary arteries. The height and weight of forty-nine patients in this study were available, and 29 per cent were distinctly obese.

MODE OF DEATH WITH CORONARY SCLEROSIS

Sudden Death.—The frequency of sudden death in cases of coronary sclerosis has been appreciated for many years. Of the cases reported here, sudden death occurred in 37 per cent. The highest incidence occurred in patients with typical angina pectoris, 38 per cent of the patients dying suddenly. In order of frequency, the other clinical types of coronary sclerosis attended by sudden death were: occult coronary sclerosis, 21 per cent; angina pectoris with progressive myocardial failure, 19 per cent; progressive myocardial failure, 17 per cent, and atypical angina pectoris, 6 per cent. Sudden death in angina pectoris is not unexpected. The

rather high incidence of sudden death in both the progressive myocardial failure type and in the occult type of coronary sclerosis implies the necessity for more accurate diagnosis, and for the identification of the pathologic processes underlying myocardial degeneration.

The average degree of coronary sclerosis was pronounced (3+) and occlusion was evident in 56 per cent of the patients. Seventy-one per cent of the patients with myocardial infarction died suddenly.

Gradual cardiac failure.—Death was the result of gradual cardiac failure in 15 per cent of the cases. The incidence according to clinical types was as follows: typical angina pectoris, 38 per cent; progressive myocardial failure, 38 per cent; occult coronary sclerosis, 14 per cent, and angina pectoris and progressive myocardial failure, 8 per cent.

The average degree of coronary sclerosis in patients who died from gradual cardiac failure was quite advanced (Grade 3), but there was less tendency to occlusion (38 per cent). Myocardial infarction occurred in only 8 per cent of the cases.

Death from other causes.—Causes other than heart disease were responsible for death in 48 per cent of the cases. This group included patients suffering from diseases such as chronic nephritis, cerebral hemorrhage, diabetes mellitus, carcinoma of the stomach, carcinoma of the pancreas, carcinoma of the prostate, and cirrhosis of the liver. The incidence of clinical types in this group is significant, in that 68 per cent of the cases were of the occult coronary sclerosis type. This indicates that the patient's attention is chiefly directed to his major complaint, and that in the physical examination the appraisal of the cardiovascular system is probably not sufficiently thorough. There unquestionably are instances in which the identification of occult coronary sclerosis is impossible, yet every effort should be made to make this group minimal. The other clinical types, in which death resulted from causes other than heart disease, were

the progressive myocardial failure type, 27 per cent, and typical angina pectoris, 5 per cent.

ELECTROCARDIOGRAPHY IN CORONARY SCLEROSIS

The electrocardiogram is of great aid in the diagnosis of coronary sclerosis. The high incidence of certain graphic abnormalities in proved cases of coronary sclerosis makes this a valuable clinical adjunct, and the more routine application of electrocardiography in cases in which coronary sclerosis is likely to exist will aid materially in the identification of the occult or unrecognized type. The most frequent graphic abnormality present is the inversion or negativity of the ventricular T wave in certain isolated or combined derivations.^{2, 5}

In this study, of the patients receiving electrocardiographic examination, 68 per cent showed significant graphic abnormalities. In a previous study³ of 155 cases of angina pectoris, significant electrocardiographic changes were found in 51 per cent.¹ There is little doubt that the use of the electrocardiograph in conjunction with careful clinical study is of great help in identifying obscure cases of coronary disease.

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Salvarsol and Insulols.—Salvarsol is stated by the Drug Products Company to be rectal suppositories containing arsphenamin. The lack of evidence for the value of the rectal administration of arsphenamin was the subject of a report of the Council on Pharmacy and Chemistry in 1920, and the Council's conclusions have been fully confirmed. Insulols are stated by the Drug Products Company to be suppositories made "with carefully selected desiccated pan-

creas including the islands of Langerhans containing insulin in a safe and reliable form." The rectal administration of insulin has been tried, but without success. No preparation of the Drug Products Company has been admitted to New and Non-official Remedies. On the other hand, the Council on Pharmacy and Chemistry has reported unfavorably on the firm's "Pulvoids Calcylates," "Pulvoids Calcylates Compound" and "Pulvoids Natrium Compound" (*Jour. A. M. A.*, July 26, 1924, p. 289).

RADIUM IN BENIGN CONDITIONS OF THE NOSE AND THROAT *

LAURA A. LANE, M.D., F.A.C.S.
Minneapolis

In presenting the subject of radium in benign conditions of the nose and throat I am not unmindful of the fact that considerable controversy and confusion as to the value of radium exists in the minds of a large number of our profession. A few preliminary words about radium and the why of this confusion may not be out of place.

A little over twenty-four years have passed since radium was first introduced as a therapeutic measure. A great deal has been written about radium, especially of its use in malignancy and the results in the latter have not been as satisfactory as at first hoped. It is gratifying to find that radium is proving eminently satisfactory in many benign lesions and that it has a decided field of usefulness in rhinolaryngology.

For over three years the writer has been engaged in making a review of the literature of the last twenty years as it relates to the use of radium in the field of oto-rhino-laryngology and ophthalmology, and has also studied considerable other radium literature with reference to the properties of radium, methods of its application, its uses and the results both in malign and benign lesions.

The work and results of many experienced radium workers have been observed from time to time and personal work with radium for more than two years together with the data gathered from the above studies convinces the essayist that much of this misunderstanding has resulted from the following facts.

At first some of the earlier work was done with preparations of doubtful strength. For example, one eminent authority, who has done considerable radium work about the head, after using radium for nearly ten years with more or less unsatisfactory results, found his preparation contained only a small amount of real radium and not sufficient for malignant work.

Second, knowledge of the properties of the different rays, of screening and of the best methods of using radium, until quite recently, was often hazy in the minds of some of its users. One states

that the gamma rays from a 50 mg. quantity have little power of penetration. We now know that the gamma rays in general are many times (some estimate one hundred times) more penetrating than the other rays.

Third and perhaps the most unfortunate is the fact that radium has been used and exploited by some who were ill prepared to use it scientifically and successfully. Consequently it has been tried in many conditions totally unsuited to its use as well as being improperly used. What else but failure and disappointment could result under such circumstances?

Thanks to the painstaking efforts and observations of many experienced radium workers, this form of therapy is to-day on a securer foundation than ever before. Pardon me if these opening remarks have seemed a trifle tiresome but prejudice and pessimism instead of an open mind, especially among those who have had no personal experience in using radium, is all too common and leads nowhere.

Turning to the field of rhinolaryngology we find radium of benefit in the following benign conditions and diseases.

GROUP I

BENIGN LESIONS OF THE NOSE IN WHICH RADIUM HAS BEEN PROVED OF VALUE

1. Angioma.
2. Chronic rhinitis.
3. Fibroma—nasopharyngeal.
4. Hay fever.
5. Hyperplastic conditions.
6. Polypi.
7. Postoperative ethmoid and sphenoid conditions.
8. Rhinophyma.
9. Rhinoscleroma.
10. Syphilitic lesions.

Radium is a specific in angioma, whether of the nose, throat or other portions of the body. Crowe considers angioma of the nose more frequent than the textbooks would have us believe. He says the results with radium are very good but may be a little slow.

Aitkins² reports favorable results in several cases of chronic rhinitis, particularly an intractable case with infection of the vibrissæ and upper lip as well as the nasal mucosa. These are difficult cases to treat and we welcome a remedy which gives

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prompt relief. Several have had success in treating naso-pharyngeal fibromas. These growths are unsatisfactory to treat surgically on account of hemorrhage and recurrence. Radium fails occasionally to remove completely very large fibromas. Park³ reports success with the use of emanation in hay fever. To get the best results radium must be used early before the hay fever season begins.

Shea⁴ had found radium of considerable value in treating postoperative ethmoid and sphenoid lesions and in hyperplastic conditions. It stimulates healing and prevents troublesome granulations. The essayist has confirmed Shea's experience and has yet to find any remedy which so effectively and speedily relieves the severe headaches and neuralgias which accompany sphenoid disease. Thirty to 50 mg., well screened, are used from two to three hours once in seven to fourteen days as indicated.

Polypi have yielded excellent results with radium. Much credit is due to Lyons⁵ for his work in this field. While radium does not cure every case of polyps, it produces a fibrosis in the myxomatous type so that surgical procedures are rendered more effective. Lyons states, "Definite operative cures occur more often with radium than without." While the writer's experience is not large, four cases have remained free from return and troublesome symptoms for more than a year, and several other cases of a shorter duration appear to have been greatly improved. Sluder⁶ has recently reported benefit from the use of radium in nasal polyps. Fifty mg., using a silver, gold or platinum screen with rubber, may be left in situ for two to three hours at intervals of once a week for three to four sittings and repeated if needed.

Several reports of the treatment of rhinophyma and rhinoscleroma were found. Syphilitic lesions of the nose which failed to respond to anti-syphilitic treatment cleared with radium. The rhinologist is frequently consulted for certain skin lesions of the nose such as nevi, lupus erythematosus, eczema, ulcers, and occasionally blastomycosis lesions of the lids extending onto the nose. In all these conditions radium is of decided value.

GROUP II

BENIGN CONDITIONS OF THE THROAT IN WHICH RADIUM HAS PROVED OF VALUE

1. Angioma of larynx.
2. Angioma-like masses at base of tongue.

3. Benign papilloma of larynx.
4. Hyperplastic conditions of the larynx.
5. Chronic pharyngitis.
6. Follicular tonsillitis.
7. Hypertrophied tonsils.
8. Hypertrophied lingual tonsils.
9. Tuberculous tonsils.
10. Vincent's angina.

OTHER CONDITIONS OF THE HEAD AND NECK OCCASIONALLY ASSOCIATED WITH DISEASE OF THE NOSE AND THROAT

1. Tuberculous glands.
2. Tuberculous sinuses.
3. Pituitary lesions.
4. Thrush.
5. Actinomycosis.
6. Leukoplakia.

Angioma of the larynx is rare. New⁷ reports three cases where radium was of benefit. The large masses of angioma-like vessels or varices found at the base of the tongue may be entirely and easily removed by the application of radium.

Radium is a specific in papilloma of the larynx. American laryngology owes much to Abbe⁸ who discovered that radium would permanently cure papillomata. Many reports of brilliant results are found in the literature, the one of New⁹ being the largest and most complete. In very extensive papillomas a tracheotomy is required and the radium is inserted through this opening into the papilloma. External radiation may be combined with the intralaryngeal application when the papilloma interferes with a laryngoscopy.

Radiation must be evenly distributed. Doses of 25 mg. in a silver or platinum capsule unfiltered except for rubber have been used for one and a half hours with good results. This dose is repeated once a month for two or three times. Larger doses of 50 to 100 mc. of emanation with a silver screen and rubber used for twenty to thirty minutes and repeated in six weeks for two or three times have been very effectual.

Hyperplastic conditions including tuberculosis of the larynx have responded well to radium therapy. Freudenthal¹⁰ and others have reported good results in tuberculosis of the larynx; the former reports a series of ten cases using a 10 mg. aluminum capsule. The writer has used a small 15 mg. platinum needle unscreened except for rubber for half an hour to one hour, repeating the dose once a month

for five doses in a case of hyperplasia and edema of the larynx. Excellent results were obtained. (Case 1.)

Chronic pharyngitis with large dilated vessels and lymphoid masses will respond to radium. Crowe¹ of Johns Hopkins, in a recent article, states, "We believe it would be a wise precaution to treat with radium every adult patient that has a localized hypertrophy of the lymphoid tissue limited to the nasopharynx, rather than to remove it with the curet."

By far the larger number of cases of the nose and throat treated with radium are those of the tonsil. Several report success in treating tuberculous tonsils, the lung process being delayed and the general condition improved. Large lingual tonsils are reduced easily and much more satisfactorily than by surgery. Leukoplakia of the tonsil and mouth has been cured by radium.

More than 500 cases of hypertrophied and pathologic tonsils treated with radium were compiled from the literature. In addition there were several writers who did not report the exact number of cases they had treated, but simply stated they had used radium successfully many times. In 200 cases, the work of two authors, only eight cases or 4 per cent were not reduced or unsatisfactory.

Robinson¹¹ reports the largest series, 156 cases, with but five unsatisfactory results. Neuritis of long standing was cured. Marked remission of symptoms and improvement in chronic catarrhal otitis media were noted.

Williams,¹² who is highly trained, experienced and a conservative worker, reports a series of 101 cases, ranging in age from five to sixty years. He found recurrence of tonsillitis prevented, enlarged glands reduced, arthritis improved and the method satisfactory in 93 per cent of his cases (followed two years).

Acutely inflamed tonsils seem to respond quicker to radium. This has been observed by several and a case to illustrate this point is given (Case 2). There are a few other conditions about the head and neck which the rhino-laryngologist occasionally meets with where radium has proved of value. Tuberculous glands often associated with tuberculous tonsils, likewise cervical adenitis associated with pathologic tonsils, respond well in 90 per cent of the cases. The essayist has found radium of use in closing a stubborn tuberculous sinus of the neck.

Pituitary lesions associated with sphenoid disease, hyperplasia and other conditions have been found to be benefited by radium combined with the roentgen ray. Actinomycosis of the tonsil and glands has been successfully treated with radium.

CONSIDERATIONS IN THE USE OF RADIUM IN TREATING PATHOLOGIC TONSILS

The use of radium in producing an atrophy of the tonsil is founded on sound biologic principles. The tonsil is largely composed of lymphoid tissue. It has been known for years that this type of tissue is very susceptible to the action of radium and the roentgen ray. That radium produces an atrophy has been shown by Wells.¹³ Two years ago the essayist removed a piece of tonsil tissue from a patient who had had three 25 mg. doses of radium and found microscopic evidences of definite areas of atrophy and fibrosis in many of the follicles.

It has been seen from the reports of those who have had considerable experience with this form of therapy that symptoms are relieved, the treatments are painless and without untoward effect when properly given. Complete atrophy can be obtained if the treatment is sufficiently carried out. This form of therapy is suited to the treatment of simple hypertrophied tonsils and adenoids of children, with patients suffering from heart disease, chorea, hemophilia, tuberculosis and other debilitating diseases where operation is contraindicated.

The writer considers that radium is contraindicated in patients with the following tonsil conditions and operation is indicated:

1. History of repeated attacks of tonsillitis and peritonsillar abscess.
2. Small, firm, sclerosed, submerged tonsils with history of frequent sore throats.
3. Badly infected tonsils causing acute polyarthritis, acute kidney, certain eye lesions and other definite evidences of infection.
4. Cases of rapidly increasing deafness and ear infection clearly due to diseased tonsils and adenoids.

REPORT OF TONSIL AND OTHER CASES

Fifty patients ranging in age from four to sixty-three years are herewith reported. The majority have been observed from one and a half to over two years; no case is reported which has not been followed at least one year. All but five were re-examined or communicated with within the past thirty days.

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RESULTS ONE TO TWO OR MORE YEARS AFTER

TREATMENT

	Number	No Return of Sym- toms	Im- proved	Unsatis- factory
Total number	50	33	14	3
Untraced	1	1
Hypertrophied type	44	27
Small type	6	6
Tonsillitis	19	18	..	1
Sore throat	22	18	3	1
Frequent colds	21	18	3	..
Enlarged glands	20	18	2	..
Acute and chronic ear con- ditions	14	12	2	..
Arthritis	8	7	1	..
Chorea	1	1
Nervous	4	3	1	..
Radium used with x-ray of glands	6	5	1	..

Many patients have gained in weight. Improvement in breathing and greater freedom from frequent colds have been noted. Glandular enlargements have been reduced. Six patients with extensive glandular involvement and many follicles on the pharynx were treated with the roentgen ray in addition to the radium. One patient has had a tonsillectomy. This patient had very large tonsils, several abscessed teeth, and took but one treatment. The tonsils were considerably reduced and the tonsillectomy was not done for many months after the treatment when the teeth gave trouble.

A severe case of chorea (Case 3) responded remarkably well. Several patients with acute follicular tonsillitis obtained almost immediate relief. A patient with a Vincent's angina of two weeks' duration which had not responded to previous treatment was entirely healed on the fifth day after a 40 mg. dose.

Considerable care has been used in selecting patients for radium therapy. Special attention has been paid to the diet and removing other foci of infection. Of the fourteen cases classed as improved six consider their condition satisfactory. Nine of the fourteen have had only one treatment to each tonsil, which was not at the time deemed sufficient; likewise several of those having no return of symptoms. In four of the improved and two of the unsatisfactory, diet and home environment are still very faulty. Many show throats cleaner, smoother and freer from remnants and scarring than is seen oftentimes following tonsillectomy.

In 1922 the essayist presented a report¹⁴ of a somewhat similar group of patients treated with

the roentgen ray. A review of these cases has been made. Not nearly so many could be traced or re-examined as in this study. The results on the whole have been less satisfactory than with the radium. Radium has the advantage of being placed where it is needed, namely, within the tonsil. It causes a much more uniform reduction and without any unpleasant symptoms. No burns or other untoward effects have been noted in the radium therapy of any nose or throat patient.

Case 1.—Edema and hyperplasia of larynx. A. M., a man, aged 27, was seen October 13, 1922. He complained of hoarseness and dyspnea of three years' duration; also of an ozena of many years' duration. He had no pain. He gave a history of having been under observation for a tuberculosis of the lungs for several years, but at that time it was inactive.

Examination: The patient is a well developed slightly obese man. He has an extensive ozena of the left nostril with a lesser involvement of the right one. Some dental caries is present; also a chronic pharyngitis. Some tonsil tissue is left in each fossa. There is no glandular involvement. Examination of the larynx shows the arytenoid tissues much thickened and edematous. The vocal cords are not visible, being hidden by the enlarged ventricular bands. No evidence of ulceration is present. The epiglottis is not involved.

The Wassermann is negative. The basal metabolism is a minus 7 per cent. Report of the x-ray and chest examination shows an apparently healed lesion. The heart and other findings are negative.

Treatment: A small 15 mg. platinum needle, unscreened except with two thicknesses of rubber, held in place by a silver wire, was introduced over the arytenoid area for a half hour. Its position was frequently changed. No reaction followed the application and one month later the dose was repeated for one hour. Treatment was prescribed for the ozena. As a result the hyperplasia became markedly decreased, the vocal cords were easily seen, and the edema entirely disappeared. The hoarseness and dyspnea were greatly relieved. The patient's condition has remained good to date.

Case 2.—Acute follicular tonsillitis. Mrs. S. D., aged 38, was first seen in January, 1914. The previous week she had had a severe attack of tonsillitis. Examination showed a large left inflamed bulging tonsil with a peritonsillar abscess. This was drained and treated. On the eighth day, when about recovered, she had a spontaneous hemorrhage from the center of the left tonsil. This bleeding persisted at intervals for a period of three days in spite of every effort to control it.

In 1915 she had another attack with evidences of focal infection from the tonsils. Operation was advised after recovery. In 1916 she was seen again with a peritonsillar involvement. A short time after she moved away and was not seen again until January, 1922. She gave a history of several attacks of tonsillitis since last seen. There was present on this date a severe follicular tonsillitis with tem-

perature of 102. A 10 mg. platinum needle was embedded in the left tonsil for three hours. The other was painted with 25 per cent silver nitrate. The following morning the left tonsil was very much cleaner and the swelling and inflammation decidedly less than on the right side. The temperature was 99. A similar dose was then used on the right tonsil. Improvement was rapid. The patient reported relief from pain, from difficulty in swallowing and less aching than with any other form of treatment she had ever had during an acute attack of tonsillitis.

An additional dose of 50 mg. was used a few weeks later in each tonsil. Up to May, 1924, this patient has not had a sore throat or cold since the first treatment. She has gained considerably in weight, and her rheumatism and tired feeling have entirely disappeared. The tonsils before treatment extended two-thirds the distance to the uvula. They now are well within the pillar line, the surfaces are clean and no pus can be expressed. Another treatment was advised in order to bring about the entire disappearance of the tonsillar tissue. The patient, however, considers this unnecessary while her present condition is so satisfactory.

Case 3.—Chorea. E. P., aged 6. She had been excluded from school in 1922 on account of a severe chorea. She had had an attack of tonsillitis in December, 1922. Examination showed some cervical enlargement; the tonsils extended more than half way to the uvula, were inflamed and ragged. She was very nervous and had a typical chorea. This child was undernourished and finicky about eating. She weighed fifty pounds. She had had many earaches but no suppuration.

On January 3, 1923, the right tonsil was embedded with a 15 mg. needle for three hours. She was put on a rigid diet containing plenty of vitamins and more rest was prescribed. On January 16 the left tonsil was treated in a similar manner. On January 27 she was better and on February 10 she was able to return to school for short sessions. She had gained several pounds and her chorea was not noticeable unless she became overtired.

In March both tonsils were again treated by the same method. Her heart action was better and her general condition much improved. On April 18 her chorea was entirely gone, the tonsils were scarcely visible and she was in school full time. May 1, 1924, she had had no colds or sore throat since the treatments began. There had been no earache, and the nervousness and chorea had entirely disappeared. There was no cervical enlargement. She had gained eleven pounds and was in excellent condition. The tonsil fossæ were clean.

GENERAL CONSIDERATIONS IN THE USE OF RADIUM IN THE NOSE AND THROAT

A thorough knowledge of radium, of proper dosage and screening is absolutely essential to its successful use. Radiation must be evenly distributed to get the best results. Great harm can be done with radium if not properly applied. No untoward effects in benign lesions have been noted when radium was carefully used.

Extreme care must be taken in selecting cases, particularly in tonsil work, so that discredit may not be given this form of therapy. The tendency seems to be to use filtered rays with smaller doses and more frequent application, thereby securing better results.

Mottram¹⁵ and others have shown that radium if long continued or used in large doses produces a condition identically similar to an avitaminosis. Therefore attention must be paid to the physical condition and diet of patients undergoing radium therapy.

Judgment and experience are necessary in using radium. It is no longer an entirely experimental agent and it offers valuable possibilities in experienced hands in bringing relief in many troublesome conditions of the nose and throat. Dosage can now be estimated almost as accurately as with any ordinary drug. Painstaking observations are essential in creating a wider field of usefulness in radium therapy in rhinolaryngology.

ADVANTAGES OF RADIUM

Radium possesses many advantages over the roentgen ray in the treatment of benign conditions of the nose and throat. It has the advantage of being applied directly to the lesion without harm to the surrounding normal tissues.

Freedom from pain, less loss of time from work, and avoidance of scarring characterize the use of radium in the majority of nose and throat cases. Uniformly good results without danger and accident incident to surgery and anesthetics about the head make radium a highly desirable form of therapy in many lesions.

SUMMARY

1. Radium is of distinct value in many benign lesions of the nose and throat.
2. It is a specific in papilloma of the larynx and in angiomas of the nose and throat. It gives promise of being of considerable value in the treatment of nasal polyps.
3. Lymphoid hyperplasias of the throat and nose yield quickly to radium since lymphoid tissue is very radio-sensitive.
4. Radium is of value in treating pathologic tonsils of patients suffering with heart disease, chorea, hemophilia, tuberculosis, other debilitating conditions and in the simple hypertrophied tonsils of children.
5. Radium offers less scarring, less loss of time

from work and more sightly results than surgery in many conditions about the head.

6. Every unnecessary operation does some harm to medical science.

7. A thorough knowledge of radium, its effects, and methods of application is essential to its successful use in nose and throat work.

8. Much remains to be learned about the type of lesions best suited to radium therapy. Pains-taking observation of cases and more uniform methods of reporting technic and results is highly to be desired in the field of rhino-laryngology.

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DISCUSSION

DR. B. E. HEMPSTEAD, Rochester: Dr. Lane has given us a paper which I consider to be very timely. For a long time, radium has been considered of use in only malignant conditions. Recent work of many men has proven that its greatest usefulness is in some benign conditions. In the Clinic, it has been used in angiomas, nasopharyngeal fibromas, rhinoscleromas, papillomas of the larynx, leukoplakias, actinomycosis, thrush, and nasal polyps. The very extensive experience of New has shown that it is specific in angiomas, papillomas of the larynx, and nasopharyngeal fibromas. He also advised the use in actinomycosis, but merely for the purpose of breaking down the mass. We have not used it in acute infections nor in tonsil work unless the case is a malignant one.

A word of warning must be given. Radium should be used only by competent people, since burns and sloughs may occur from its improper use. It may be used either in the form of the salt, the emanations in tubes, or the emanations in seeds. A thorough knowledge of each is necessary.

HYPERTENSION: AN INDEX TO THE TOXEMIA OF PREGNANCY*

ROBERT D. MUSSEY, M.D.

and

LAURENCE M. RANDALL, M.D.

Section on Obstetrics, Mayo Clinic
Rochester, Minnesota

The toxemia occurring in the later months of pregnancy may be ultimately manifested by eclampsia, which claims for its victims 25 per cent of the women who die yearly as a result of childbirth. Vogeler, in 1907, directed attention to the importance of watching closely the pregnant woman with increasing hypertension for symptoms of impending eclampsia. Since his observations, a great deal of attention has been paid to blood-pressure readings during pregnancy, and much has been written on hypertension in the toxemias of pregnancy. Adair, in 1923, reviewed the literature and cited examples of the various types. Routine interval blood pressure readings, beginning early in pregnancy, have come to be regarded by many observers as of equal, if not of greater, importance than routine urinalyses for albumin.

Routine monthly blood-pressure readings give one the impression that during the early months of pregnancy the blood pressure of many patients is subnormal (below 120), and that there frequently is a gradual rise during pregnancy. In this review of 523 cases of pregnancy, a pressure of 140 mm. of mercury or more was considered as definite evidence of hypertension. In most cases, readings were made over a period of several months, usually from the third month on. In all cases, the urine was tested for albumin. One hundred four of the 523 patients had at some time during their pregnancy, a systolic pressure of 140 or more (Figs. 1 to 4).

Figure 1 shows the curve of the incidence of pregnancy according to the age of patients; over 55 per cent occurred between the ages of twenty-five and thirty-five years. This is given for contrast with the curve showing that in this decade the percentage of patients having hypertension was lowest.

Figure 2 shows the number of patients having hypertension, according to their parity. It is of interest that more than 27 per cent of patients in

*Read before the Southern Minnesota Medical Association, Mankato, May, 1924.

the Para I group had hypertension, the percentage dropping steadily to about 5 in the Para V group, and rising rather abruptly in the Para VI (and over) group. This abrupt rise is apparently due

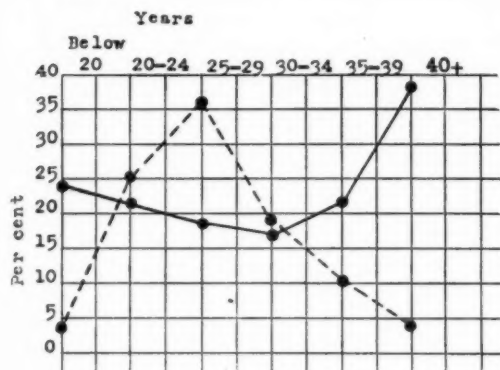


Fig. 1. The dash line represents the incidence (per cent) of pregnancy according to age, and the heavy line, patients (per cent) according to age, with systolic blood pressure over 140.

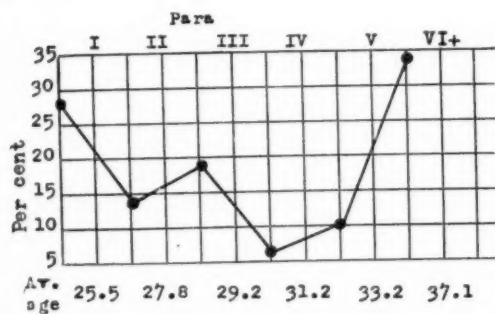


Fig. 2. Percentage of patients with systolic blood pressure over 140 according to parity.

to the increasing incidence of chronic vascular disease in the older patients.

In Figure 3 is shown the finding with regard to albumin in the urine, which may or may not be of importance. A faint trace, which is of no significance, was found in 123 patients without hypertension. A patient may have a marked amount of albumin in the urine without any rise in blood pressure or other evidence of toxemia. This may be due to pyelitis and, more rarely, to the nephrosis of pregnancy. More or less albumin was found in 50 per cent of the entire group; only 50 per cent of patients with hypertension had more than a faint trace of albumin. This bears out Litzberg's findings in 1917.

De Snoo, in 1922, divided the hypertension of pregnancy into three groups: (1) hypertension

associated with toxemia, (2) hypertension resulting from chronic nephritis, and (3) the so-called essential hypertension.

Under this classification hypertension is of more significance in some cases than in others. In each case it is necessary to determine the cause of the hypertension relatively early. The non-pregnant woman rarely has essential hypertension before the fourth decade of life. In the pregnant woman it is not accompanied by an appreciable amount of albumin in the urine, nor by the usual symptoms of toxemia; that is, edema, headaches, dizziness and abdominal pain.

It may be difficult to differentiate chronic nephritis. In a mild case in the early months of pregnancy the woman may have normal blood pressure and no urinary abnormality, aside possibly from a low specific gravity which points toward pre-existing nephritis. Occasionally there will be a history or record of acute nephritis, or of symptoms of toxemia during a previous pregnancy. Study of the ocular fundi may reveal evidence of old trouble.

The differential diagnosis may only be made later in pregnancy when, besides the toxemic symptoms, evidence is found of lowered phenolsulphonphthalein output in the urine, and retention of

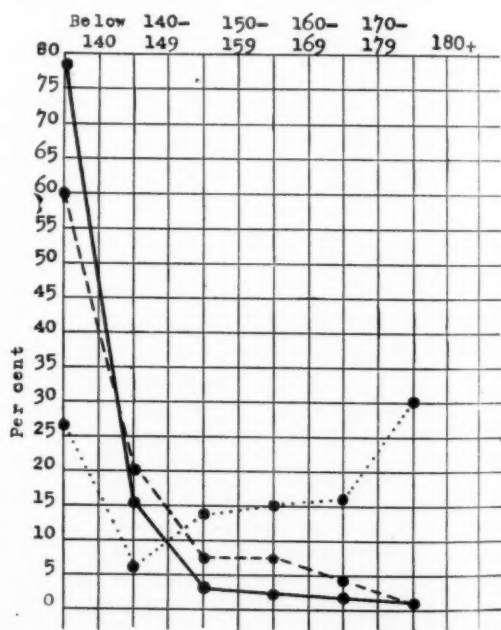


Fig. 3. Relation of albumin in urine to hypertension. Albumin 1, heavy line; albumin 2, dash line; albumin 3 and 4, dotted line.

urea in the blood. One of the peculiar phases of the toxemia of pregnancy is the lack of evidence of renal deficiency aside from chloride retention. In this it closely resembles "trench nephritis" (acute glomerular nephritis). In fact, Keith asserts that the symptoms and findings of so-called eclampsia may be identical with the convulsive type of trench nephritis. The differential diagnosis is most important on account of treatment and prognosis. Although essential hypertension must be carefully watched it does not carry a bad prognosis. The prognosis of toxemia is good if the early symptoms are relieved and eclampsia is avoided, but the prognosis in cases of chronic nephritis is usually poor.

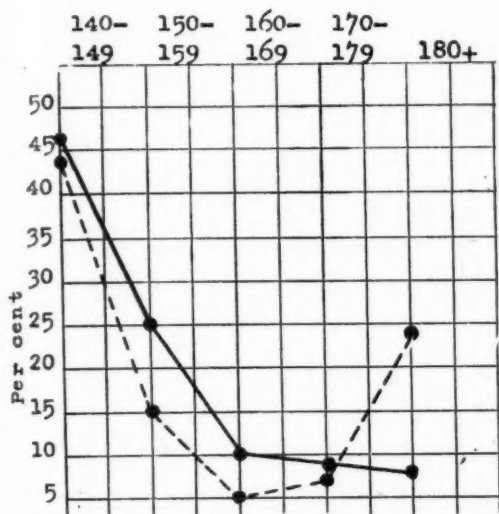


Fig. 4. Heavy line represents patients below thirty years of age, and the dash line patients above thirty years of age, showing the incidence of various grades of hypertension (per cent).

Of the 104 patients with hypertension, sixty-one had varying grades of toxemia, ten had essential hypertension, and ten had chronic nephritis. Of the remaining twenty-three, many of whom had a pressure between 140 and 150, the data were insufficient for diagnosis. Most of these were examined for the first time shortly before or during labor, and had only one blood-pressure reading.

A review of the eighty-one cases of hypertension in which diagnosis was possible tends to bear out the hypertension curve according to age and parity, as shown in Figures 1 and 2. Of the patients with hypertension below the age of thirty, 72 per cent had toxemia, while 54 per cent of those with hyper-

tension over the age of thirty, had toxemia; 67 per cent of the patients with toxemia were Para I, while only about 40 per cent of the entire group were Para I. It is not uncommon to carry through subsequent normal pregnancies a patient who, in her first pregnancy, had hypertension with definite evidence of toxemia. Figure 4 shows that patients over thirty years of age have the more severe grades of hypertension, due mainly to the higher incidence of chronic vascular disease in the older woman.

CONCLUSIONS

1. Increasing hypertension during the course of pregnancy at any age points toward the onset of toxemic symptoms.
2. Hypertension, especially in the woman under thirty years of age, is a better index of early toxemia than is albuminuria.
3. Toxemia of the later months of pregnancy is most common in primiparous women.
4. The evidence that more than 25 per cent of primiparous women have a blood pressure over 140, and that this hypertension is a fair index of the onset of toxemia, emphasizes the importance of blood-pressure readings at regular intervals as a routine of prenatal care.

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DISCUSSION

DR. W. H. CONDIT, Minneapolis: Dr. Mussey's excellent study of his series of five hundred cases of pregnancy, relative to the frequency of toxemia, presented to us today, is of unusual interest and demonstrates, as do all carefully analyzed statistics, that the curve of incidence of toxemias of pregnancy is upward, in spite of the general improvement shown by the records of our maternity hospitals.

I was pleased to see Dr. Mussey place the danger mark in the hypertension of pregnancy at 140 systolic. In 1914 I presented an essay before the Cook County Medical Society in Chicago, entitled, "Some Medical and Surgical Problems of Prophylaxis in Eclampsia" and suggested the danger line be placed at 150 systolic pressure.

I also suggested that we discontinue the use of the word

"eclampsia" as it is not a descriptive word. Its derivation is from a Greek word meaning "to flash"—"to shine out brightly"—and is more properly "eclatoma" not "eclampsia." Surely there is nothing very bright or shining about the convulsions in toxemia of pregnancy. A better term to use to designate the cases usually called eclampsia is "toxemia with convulsions" or "without convulsions" as the case may be.

The doctor's essay quite forcibly illustrates another debated point in obstetrics, namely that a pregnant woman is in a pathological rather than a changed physiological state. In 1922, ten per cent of the women in this state giving birth to a living child were unattended and unadvised by a licensed physician and forty per cent of these 5,600 women were not even attended by a midwife or nurse. This condition surely demonstrates the need of more education of the public to the necessity of some supervision of all patients in the pregnant state. Again, so long as licensed physicians, irrespective of their obstetrical training, continue advising and delivering the pregnant women, we still have work to do in our profession to improve the service before the mortality and morbidity statistics of pregnancy are improved.

I feel that careful, accurate and conscientious study of the blood tension in pregnancy is the best means so far known to our profession for determining the first signs of toxemia and that any patient so studied can be so treated as to be always protected from the dangers attending toxemias of pregnancy.

SHOULD WE DRINK ICE WATER?

The American habit of drinking ice water is not viewed with alarm by Dr. James Frederick Rogers, writing in the August *Hygeia*, popular health magazine. Dr. Rogers thinks that physicians of a generation or two ago were unduly concerned over the harmful effects of ice water on the stomach.

In some instances harm may be traced to the practice, Dr. Rogers declares, but many persons experience no injurious effects whatever. It does cool the stomach and inhibit digestion but this effect is less than is commonly supposed. Most of the deaths that were formerly attributed to drinking ice water were simply due to heat.

To test out the effects of ice water upon workers exposed to high temperatures, the American Society of Heating and Ventilating Engineers recently carried out some experiments. After being an hour in very hot surroundings, two men drank a quart of ice water in less than fifteen minutes. Cramps did not develop and they experienced no ill effects.

"Most of us can certainly take a moderate amount of at least moderately cold water without harm," concludes Dr. Rogers, "and in hot weather even a larger number can indulge in a reasonable quantity of cold beverages without fear either of deadly effects or even a passing digestive disturbance. In this, as in many other every-day matters connected with our bodily affairs, each man is the best judge of what is good and what is harmful for himself."

THE X-RAY IN OBSTETRICS*

MYER NORMAN MOSS, M.D.

Assistant in Obstetrics and Gynecology,
University of Minnesota Medical School

St. Paul

Röntgenography has already begun to spread its rays of usefulness into the field of obstetrics and, although still in its embryologic stage, gives promise of being as indispensable here in the near future as it now is in all the other branches of medicine and surgery.

During the past eighteen months the writer has been interested in the study of this particular work. At first, roentgenograms were made only in those cases in which some abnormal condition existed or was being suspected. As more of these pictures were taken and closer observations made, it soon became obvious that there was considerable more to be learned than had at first been anticipated. At the present time the x-ray is used in all primiparous patients routinely and in multipara only when some indication presents itself.

Considerable discussion has been created with regard to the effect of the x-ray upon the babe in utero. The consensus of opinion at the present time is that the x-ray can do no harm either early or late in pregnancy. There are some men, however, who contend that repeated exposures during the early months of pregnancy may be sufficient to cause an abortion. There appears to be no opposition to the employment of the x-ray in the last trimester of gestation.

As to the time most suitable for x-raying these patients, it is advisable to wait until the last month of pregnancy; within two to three weeks of the probable date of confinement. The reason for this is threefold: (1) because then the baby is almost completely developed; so that the findings at this time are very apt to persist and to be present when the patient goes into labor; (2) the bony skeleton is more completely ossified, and, therefore, gives a much clearer picture; (3) the cases may be followed from time to time; diagnoses made; findings recorded and then the x-ray used, not as a sole means of diagnosis, but as an aid in checking up these findings and to correct any errors which may have been made.

Of what value is the roentgen-ray in obstetrics?

*Presented before the staff of St. John's Hospital on January 21, 1924.

How may we expect to benefit by its use as an occasional or routine measure in the practice of obstetrics? From my own short experience and from a survey of some of the literature already available upon this subject, I am convinced that by the aid of the x-ray one may determine: (1) normal or abnormal relative proportions; (2) the presence of a single or multiple pregnancy; (3) position and presentation; (4) the presence of a monstrosity, e.g., a hydrocephalic, an anencephalic, a double monster, etc.; (5) the presence of a dead baby; (6) the diagnosis of pregnancy.

Relative proportion has been placed at the head of this list because it is one of the most important things to know before labor sets in. An effort is usually made to determine this prenatally, by the aid of the pelvimeter; but while this method is fairly accurate, it does not give all the data necessary for the correct diagnosis of proportion. Too often do patients with apparently normal measurements have prolonged, difficult labors, many times demanding instrumental delivery and occasionally abdominal section. It is therefore important to know not only the size of a pelvis but also the size of the head which must pass through it. An abnormally large head will not pass a pelvic cavity even though the measurements are found normal; while a small head may pass a comparatively small pelvis. The x-ray enables us to determine this with the greatest possible degree of accuracy.

The importance of determining whether a mother is carrying more than one baby is self evident. The mother is anxious to know—and should know—whether she is going to have twins in order that she may be prepared for that eventuality, and be less surprised when it is all over. Again, in a patient with a small pelvis, who is carrying twins, the diagnosis of a single large baby may be made; and in order to make her labor less difficult, one may desire to induce labor two to four weeks before the probable date of confinement. In the presence of a single baby, where it is feared that a continuation of the pregnancy for two to four weeks may give rise to disproportion and a subsequent difficult labor, this may be a justifiable procedure, but in the presence of twins which as a rule are already premature, it may mean death to one or both babies.

While it is true that positions and presentations very often change during the last month of pregnancy, still in the vast majority of cases the find-

ings are much the same as when labor sets in. It is important and very convenient to recognize a breech, a face, or an occiput posterior before labor begins, in order that one may be better prepared to meet these more difficult conditions. For the proper determination of position, both antero-posterior and lateral plates are often necessary.

No mistake could be more unfortunate—no embarrassment greater—than the failure to diagnose the presence of a monstrosity, particularly when there is disproportion due to a hydrocephalic baby, and to attempt a version, a difficult forceps, or an abdominal section in such a case; when the correct procedure should be a craniotomy. It is most important that the diagnosis of a monstrosity be made before labor begins, in order to properly meet such a contingency. No method available is a more certain aid in the diagnosis of such cases than the employment of the roentgen-ray.

It occasionally happens that a patient comes to us during the last trimester of pregnancy, for the first time. She had felt life until a few days ago, and is now anxious to know whether her baby is still alive. An examination reveals a very obese type of a patient with a polyhydramnios, making it very difficult to hear the fetal heart. The diagnosis here, as in many other similar cases, may be doubtful, but can be readily cleared up by the aid of an x-ray film. If the baby is living, the outline of the fetal skull is regular, but in the presence of a dead baby, because of absorption of some of the cerebral fluid, the bones overlap and the scalp folds, giving the head a very irregular outline.

As to the diagnosis of early pregnancy by the aid of the x-ray, one should be able to make a diagnosis by the ordinary methods just as early. It will, however, be of considerable value in helping to differentiate between pregnancy and a tumor, particularly in the presence of a dead baby.

CASE REPORTS

CASE 1.—History.—Mrs. N. P. W., aged 38, first seen during the third month of pregnancy. The blood pressure and urine were normal throughout. The external measurements were 26, 28, 32 and 20. Was delivered February 1, 1924, of a baby girl weighing seven and one-fourth pounds, after being in labor for four hours.

CASE 2.—History.—Mrs. E. A. M., a nurse, gravidara two and para one, aged 28, first came to me at three months. The blood pressure and urine were negative at all times. The pelvis measured 21, 26, 31 and 18.5. Her first labor was prolonged and after a difficult version was

delivered of a dead baby. On December 8, 1923, she came to the office in labor and was immediately sent to the hospital. Within four hours the cervix was almost

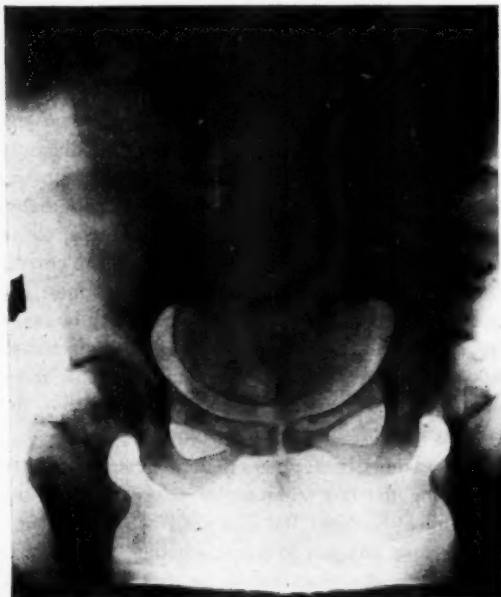


Fig. 1. This is an x-ray film of the patient (Case 1) taken December 23, 1924. It shows a perfectly normal pelvis, an average sized baby, with sufficient room for the presenting part to pass without difficulty.

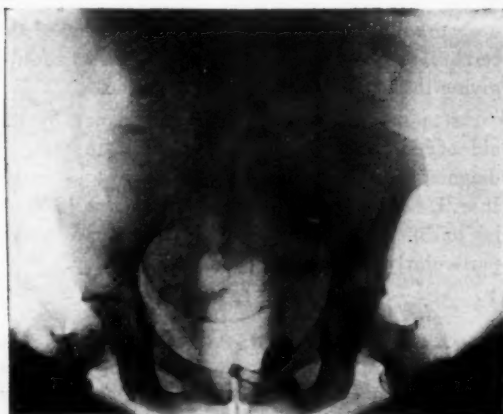


Fig. 2. This film was made November 30, 1923, and shows a common form of contracted pelvis. It is high and narrow, the hip bones do not have the normal flare, and the inlet is larger than the outlet, giving the form of a masculine or funnel-shaped pelvis. The head is riding high, and although of average size meets with considerable difficulty at the outlet.

completely dilated and remained at this stage for two hours without further progress, in spite of strong uterine contractions. After doing a deep left medio-lateral episiotomy and rather difficult mid-forceps, delivered her of a baby boy weighing seven pounds.

CASE 3.—*History*.—Mrs. C. K. S., aged 27, para two, was first seen at five months' pregnancy. Urine was normal at all times. The blood pressure was normal up to the latter part of the eighth month, then there was a gradual rise. Patient had convulsions with her first baby and was delivered by difficult version and extraction. External measurements were 25, 28, 35, and 21. September 23, 1923, quinine and castor oil were given in an effort to induce labor. On the following day she began to have pains. The position and presentation was O.L.P. After two hours of strong uterine contractions in the second stage of labor without any progress, the head was rotated, manually, into the transverse diameter, the forceps applied in the oblique, and a nine and one-half pound boy delivered.

CASE 4.—*History*.—Mrs. E. L., aged 25, para four, first seen at the dispensary during the last month of pregnancy. On January 8, 1924, a diagnosis of breech presentation was made and this was immediately verified by the aid of the x-ray. The patient was at term and because of previous difficult labors was advised to enter the hospital.



Fig. 3. X-ray pictures were taken September 7, 1923. The one illustrated here shows the spine of the baby pointing towards the spine of the mother, making this an occiput posterior position. An antero-posterior picture was also taken and this showed the spine of the baby to be on the left side of the mother. From both films it was obvious that the position was O.L.P.

Two days later she was admitted and the diagnosis of vertex presentation was now made. This also was checked up by an x-ray film.



Fig. 4. An antero-posterior view showed a normal pelvis, a good sized baby, breech presentation, with back towards the left side of the mother. The other film, which was made at the Ancker Hospital two days later, showed the head deeply engaged within the pelvis.



Fig. 5. This film was taken June 23rd, and clearly shows two babies each presenting by the vertex. One head is deeply engaged while the other is at about the level of the umbilicus. The babies are small and from their position should give no difficulty at the time of delivery.

Comment.—Case 4 is interesting in that it demonstrates the fact that a breech may correct itself at any time, even within a very short time before labor begins. Most breeches diagnosed early in pregnancy rotate before labor sets in if there is no special cause for their presenting as such. However, in cases due to some special cause, such as hydrocephalus, short cord, cord around the neck, etc., they usually remain and deliver as such.

CASE 5.—History.—Mrs. C. H., para three, aged 26, first came to the Ancker Hospital Dispensary in her eighth month of gestation. The blood pressure was 150 over 80 and her urine showed a trace of albumin. Abdominal examination revealed two palpable heads, multiple small parts and two distinct fetal hearts. The diagnosis of twin pregnancy was made and immediately confirmed by the aid of the roentgen-ray.

CASE 6.—History.—Mrs. A. P., para one, aged 19, was first seen at the Ancker Hospital Dispensary at seven months. Her measurements were normal. Blood pressure was normal and the urine negative until one week before delivery, when it showed a heavy trace of albumin, some leucocytes and occasional casts. The patient complained of frequent dizzy spells for a period of two months before labor set in. An examination showed the abdominal and uterine muscles to be very rigid, so that it was difficult to



Fig. 6. The illustration shows an abnormally large head, irregular in outline, and a comparatively small body. The irregularity of the head is due to absorption of some of the cerebral fluid, giving rise to some overriding of the bones.

make out the small parts. The heart tones could not be determined, although the patient claimed to be feeling life. From the size and consistency of the presenting part at the brim, and because of the persistent absence of fetal heart tones, the diagnosis of a dead hydrocephalic baby was made and this confirmed by the aid of a roentgenogram. May 14th the patient was delivered of a dead hydrocephalic.

CONCLUSIONS

1. The foregoing observations aim to emphasize the fact that the frequent employment of the roentgen-ray is a necessary procedure.

2. The cautious use of the x-ray at any time during gestation is not harmful in the least to the baby.

3. It helps to determine those findings which are looked for during the prenatal care of a patient. Pregnancy, with its normalities and many of its abnormalities, and its differential diagnosis, may be determined in this way with the greatest possible degree of accuracy.

4. In any case which hints a possible difficult delivery or abdominal section, the use of the x-ray is not only desirable but essential.

5. Its employment for the first time is certain to give more information than was originally looked for and will prompt the desire to employ it more in other cases, even though the indications be less urgent.

Prophylactic Inoculation of Dogs Against Rabies.—The evidence for the efficiency of prophylactic immunization in persons bitten by rabid animals has long been too convincing to permit of doubt. In Japan experiments to reduce the frequency of rabies by inoculation of the dog population show that its frequency with dogs has been greatly reduced (Jour. A. M. A., July 5, 1924, p. 44).

"Sero" Endocrine Preparations.—A circular "For Endocrine Therapy" bears the name of R. A. White, Los Angeles, and Cal. Endocrine Foundation Laboratories, Long Beach. It advertises "Asthma Sero," "Antitoxoid in Tuberculosis," "Rheumatism Sero," "Nephro Sero," "Pneumonia Sero," "Abscess Sero," "Tabes Sero" and "Malnutrition Sero." In connection with each product appear words which, if read hurriedly, might be taken by some as a statement of composition. For instance "Antitoxoid in Tuberculosis" is said to contain "Orco-plasm, Thyroid Extract and Phosphor Iodide." "Rheumatism Sero" is said to contain "Orco-plasm and Thymus Iodide." The circular contains the vague statement that orco-plasms are compounds that "represent unchanged protoplasm and serologic organic and inorganic substance." It contains also the unenlightening statement that "the Inorganic Substances in the Seros are in form Physiological Solutions." The circular wisely makes no attempt to define "phosphor-iodide" and "thymus iodide" (Jour. A. M. A., July 5, 1924, p. 58).

INTUSSUSCEPTION IN INFANCY*

W. B. GRISE, M.D.

Austin Clinic
Austin, Minn.

Intussusception, the condition where one portion of intestine slips into an adjoining segment causing a tumor and obstruction, is not common, but one of the most dangerous of acute abdominal conditions met in infancy. My object is to review the subject briefly, emphasizing especially the importance of early recognition of symptoms, early diagnosis and treatment, thus giving the infant the best chance of recovery.

The high mortality in intussusception reported during the last twenty years is due mostly to two factors—the tender age of the patients, and the late diagnosis and treatment. In one series of 374 cases, extending over twenty years—reported from St. Thomas Hospital, London—the average mortality was 32 per cent. Beginning in 1898 with 48 per cent this had decreased by 1918 to 19 per cent. In other cases reported, one group of 112 cases from the Children's Hospital of Boston, had a mortality of 39 per cent. One of twenty-three cases reported by MacAuley had 17.3 per cent. The lowest was a group of twenty cases reported by Goldschmidt in which only 5 per cent were fatal. Thus we see that the death rate has been very high but also that this has gradually decreased in recent years. It is my opinion that our present statistics would show a mortality rate considerably lower.

Over one-half of all cases of intussusception occur before the ninth month and about three-fourths before the second year. It is two or three times more common in males than females. The younger the infant the more rapid the course.

The types in the order of frequency in which they occur are as follows:

1. The ileo-cecal (about 80 per cent). In this the cecum with the ileum behind it passes into the colon, the ileo-cecal valve continuing to be the apex of the projecting portion.
2. The ileo-colic, in which the ileum passes through the ileo-cecal valve, the ileum being the prominent protruding part.
3. The colic, limited to the large intestine only.
4. Ileac or enteric, limited to the small bowel.

*Read before the Southern Minnesota Medical Association, Mankato, May, 1924.

The occurrence of this condition in infancy is due to the weaker development of muscle and elastic tissue and a correspondingly thin intestinal wall. At birth the colon and ileum are almost the same size and by the fourth or sixth month the colon is three or four times as large as the ileum. The rapid growth and increasing disproportion between the diameter of the large and small bowel is usually accompanied by a large relaxed ileo-cecal valve. The colon in these cases usually has a long swinging mesentery. In many instances the ileum enters the cecum not at a right angle as normally but almost in a straight line. Other causes are given such as abnormal peristalsis due to undigested food; any intestinal irritation or foreign bodies; trauma or local meteorism.

The onset is sudden in most instances. There is scarcely any other condition in infancy which strikes so quickly from a clear sky. It usually begins with sudden, violent, abdominal pain, accompanied or followed shortly by vomiting. These two symptoms are almost always present. At this time there are usually one or two stools containing fecal matter. Later, stools of mucus, mucus streaked with blood or even pure blood may appear. This is accompanied by pallor, anxious facial expression, general muscular relaxation and shock. The prostration is often out of proportion to the other symptoms. Usually there is marked restlessness early, but later, apathy and dullness. The temperature is not elevated the first twenty-four hours and may be even sub-normal. The abdomen is most often relaxed, later is usually distended, and a tumor can often be felt on palpation.

1. Pain is rarely absent and is a prominent symptom in over four-fifths of all cases. It comes suddenly, may be uninterrupted at first but later is usually intermittent in character, varying in intensity but inclined to come at rather regular intervals. This is accompanied by high pitched crying, either continuous or intermittent, the infant often assuming peculiar positions, frequently the prone. The face is usually pinched and pale and shows plainly that the child is suffering. With beginning collapse the pains may be indicated only by regularly repeated moans and the drawing up of the legs. In a few hours the pain and symptoms of shock may disappear for a time, which may be due to an edema of the bowel; this is a deceptive lull should the physician see the baby at this time.

2. Vomiting, present in four-fifths of the cases

reported, is reflex in character, is usually early but may be absent until the second day. In a few cases there was none. It may occur at intervals or be almost continuous, and is more constant if the invagination is in the small bowel. It is aggravated by food or laxatives. It must be remembered that although vomiting is a common symptom in infants, in this instance it is usually more urgent and comes in an otherwise healthy baby.

3. After the lower bowel is emptied of fecal matter, the stools in acute cases with complete obstruction have no fecal odor and there is absence of gas by rectum. Blood in the stools is one of the most important and frequent symptoms and may vary from a few streaks to a severe hemorrhage. It was present in over 76 per cent of cases. It may be absent until the second day. In the sub-acute type the blood may cease for twenty-four hours, only to reappear.

4. The abdomen is usually soft, giving little resistance to palpation the first twenty-four to forty-eight hours. It may be retracted. There may be tympanites—especially the second or third day; its absence, however, is of more diagnostic value. A tumor can be felt in about 86 per cent of cases. It is often sausage-shaped but it may be only an insensitive mass. It is felt more easily during an attack of pain, for the consistency varies at times due to the spasmodic contraction of the intestinal wall. It may suddenly become soft and seem to disappear. It is most frequently felt on the left side. It may be localized at one time and later seem to be movable so that it can be palpated in any part of the abdomen. In a small percentage of cases it can be felt by rectum. Protrusion of bowel through the anus is a late symptom and indicates an invagination low down, or the telescoping of long areas of intestine. Localized tenderness is of some importance in the absence of a palpable tumor.

For reasons mentioned above an early diagnosis is urgent. One must rely much on the mother's history of the onset. In the presence of the four principal symptoms—pain, vomiting, abdominal tumor and discharge of blood and mucus from the rectum—diagnosis is not so difficult. Unfortunately, many cases do not have the typical onset and symptoms, and to catch these cases early, one must be on the alert and exercise extreme judgment in any acute abdominal condition. Failure in diagnosis is most often due to a tendency of physicians

to interpret active vomiting, with green mucus and bloody stools, as significant of a gastro-intestinal intoxication. Other conditions that might be confused with it are: volvulus, hemorrhoids, hernia and appendicitis, the latter being much less frequent in infants. As an aid in diagnosis an opaque enema is very important as it shows the exact location of the invagination. This is best given with a very small catheter to prevent straining. The fluid should flow in slowly, and under the fluoroscope, using gentle pressure to push the opaque contents along the colon, a conical shadow appears at the point of obstruction. If there is no obstruction the opaque enema will go through the ileo-cecal valve. (This valve has been found incompetent in 99 per cent of normal infants.)

The treatment has only one object—that of reducing the invagination by medical or operative methods. Either, however, is a mechanical procedure. A few men plead for less haste in using radical methods especially when seen early. Some advise an attempt at reduction with water or air by rectum under slight pressure. The usual method is to use two quarts of normal saline with irrigating can four feet above the body, injected through a good sized catheter, with hips elevated ten to twelve inches above the shoulders. The buttocks are held to help retention, while gentle manipulation of the mass through the abdominal wall is made. This procedure is more safe and successful if used with light anesthesia. Some advocate small doses of opium to quiet the bowel. This method is useful when the obstruction is in the lower segment of the bowel but must be used early. One objection to its use lies in the inability to control the apparent results. Another is the danger of rupture of the thin bowel. Also, disappearance of the tumor may be due only to a change in its position. If unsuccessful in the first attempt we should at once turn to surgical interference. Modern opinion is tending more and more to the idea that immediate surgical intervention is the best treatment.

I will not go into detail as to surgical procedure but will mention a few things of interest in this regard. About 89 per cent of cases can be reduced by opening the abdomen. Reports show that favorable results depend more on the time elapsing before surgical intervention than on any other one factor. The percentage of recoveries when operated within the first twenty-four hours is about two and a half times greater than if operation comes after

the twenty-four hour interval. The operation should be as short as possible, cutting down the anesthetic to the minimum. The death rate increases directly with the amount of work done. Therefore, there should be as little manipulation as possible, and it has been definitely shown that removal of the appendix or any extra procedure increases the risk. It is important to reduce the invagination from the apex, pushing instead of pulling. If irreducible, reports show it is best to make an artificial opening into the bowel, waiting until later to resect the segment. Most cases under thirty-six hours can be reduced. The proportion of operative cures of intussusception is steadily increasing. This is due not only to improved technique, but in a large measure to more careful attention to early diagnosis.

I will cite but two recent cases to show that we can get results with the more conservative treatment, but especially to stress the importance of early operative interference when indicated.

CASE 1. Herald S., a boy six months old, breast-fed. Had a cervical abscess at two months; otherwise healthy. Had been restless and not nursing well and had some symptoms of intestinal irritation for two days, when at 5 A.M. he began crying and seemed in severe pain. The mother gave an enema with no relief. The stool was slightly green. Vomiting began at 10 A.M. At 12 o'clock the baby was taken to a physician, who looked for a hernia as the cause of pain. He suspected appendicitis, but thought it was most likely an ordinary intestinal disturbance. Several enemas during the afternoon and night gave no relief. He continued to vomit and cry with pain, resting scarcely at all. At 8 P.M. there was a stool with considerable blood. The physician saw him again at 6 A.M. and at this time, on account of the continued pain, vomiting and bloody stool, he suspected an obstruction. The baby was sent to the hospital, where I saw him at 10 A.M., twenty-nine hours after the apparent onset. On examination he was pale, slightly drowsy and in evident distress. The temperature was 103.8 degrees. The abdomen was relaxed, a tumor cylindrical in shape, about three inches long and movable, was felt on the left side at a level with the navel. This was not felt by rectum. A saline enema was given as described above, and on gentle manipulation the bowel was definitely felt to separate and the tumor disappear. The baby was more comfortable and slept well. In a few hours the stools began to show fecal matter, although the blood continued in small amounts for thirty-six hours. The temperature dropped to 101 the same day and to normal the second day. He left the hospital in good condition the fourth day.

CASE 2. Eugene C., a normal breast-fed boy of five months. Had whooping cough at one month. He had a nasal and ear infection for three days, when, while sleeping, at 11 P.M., he suddenly began to cry bitterly. He writhed and squirmed in severe pain continuously for thirty

minutes. He then became quiet and was drowsy and pale during the night. He slept some but was restless at intervals. There was considerable retching but he was unable to vomit. One hour after onset there was a greenish liquid stool of fecal matter. At 7 A.M. a second stool containing only mucus streaked with blood. I saw the boy at 8 A.M., nine hours after the onset. He was restless, pale, with considerable prostration and muscular relaxation. The abdomen was flaccid, a prominent mass could be seen just below the navel in the midline. This was rather firm, sausage shaped and freely movable, and could not be felt by rectum. The temperature was normal and pulse only slightly accelerated. During examination there was some attempt to vomit and a large bloody stool with no fecal matter or flatus. At 10 A.M., eleven hours after the onset, he was given a saline enema under considerable pressure and on manipulation the mass was felt to disappear, and it was supposedly reduced. The baby was more comfortable and had less evidence of shock. He passed some flatus and fecal stools during the day with but streaks of blood. There was no vomiting. No tumor was felt on careful palpation on several occasions during the day and evening. The abdomen was slightly tender with beginning tympanites. At 7 A.M. the following morning, the boy became more restless, tried to vomit, and there was a large bloody stool. He again showed more prostration and a mass was now felt low on the left side. This was not reduced by enema. Laparotomy was done thirty-eight hours after the onset and an ileo-cecal invagination was found with the valve and appendix carried along in the colon to the descending portion. This was reduced without difficulty and the appendix removed. The mobility was due to a very long mesentery along the cecum and entire colon. The boy made an uneventful recovery, leaving the hospital the eleventh day. In this case, although the symptoms improved and the boy was definitely better, the question remains as to whether the invagination was even partly reduced at the first attempt.

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DISCUSSION

Dr. F. C. RODDA, Minneapolis: It is a pleasure to discuss the excellent paper of Dr. Grise since it is a subject in which I am much interested.

We are much indebted to Dr. A. W. Abbott for his careful observation and report of twelve cases made before the Western Surgical Association in 1915. He showed us a clear, clinical picture of intussusception in infancy which briefly is as follows: A normal infant, without premonitory symptoms, suddenly cries out with pain and presents collapse symptoms of pallor, depression and perspiration. This stage is soon recovered from, but it is followed by periodic attacks of pain during which the infant draws up its legs, or if old enough assumes the knee chest posture. Between the attacks of pain, the child may appear well and react normally. There is no fever. After some hours there may be vomiting and there may be passage of bloody mucus from the bowel. The symptoms are so clear-cut that in our series of cases the diagnosis has been made by the mother in three instances—once in a recurrence in the same child, once in a second case occurring in the same family, and once by a mother who had been a nurse.

Aside from the classification with reference to the portion of the gut involved there are three types: (1) acute, with profound persistent collapse; (2) acute, with moderate symptoms of collapse at onset; (3) chronic.

It is not sufficiently widely recognized that there is a type of this disorder which may last for days or even weeks. We have had three such cases lasting from six days to as long as three weeks. Bergstrom in the May, 1924, number of the *American Journal of Diseases of Children* reports four cases lasting from eight to sixteen days. These cases vary from the acute ones only in that there is not a complete obstruction of the bowels.

The basis of my discussion is a series of twenty-six cases which have been observed personally.

Age incidence.—Nineteen were in infants six months to one year old; three were in infants under six months; and four were in infants over one year.

Subjective symptoms.—

- (a) Pains. All had the characteristic pains.
- (b) Vomiting. Several did not vomit at all and often it was a late symptom.

Objective findings.—

- (a) Tumor. In not every case was the tumor palpated. It is most easily palpated during an attack of pain. In very late cases, it may be felt by the rectum. X-ray examination may give confirmatory evidence when the mass has been recognized through the abdominal wall.
- (b) Blood from the bowel is usually found in small amounts if looked for early. Subsequently, in the mild, acute cases and in the chronic cases it may not reappear for days. It is not pathognomonic.
- (c) Posture. Abdominal pain as evidenced by position of the legs and the posture is always found if the child is watched for a long enough period.

Failure to find the tumor at the time of operation does not nullify the diagnosis. Due to the relaxation produced by the anesthetic and traction on the bowel, the tumor may not be delivered in the abdominal opening. But careful search will show an edematous, dark-colored bowel where the mass had been.

Complications.—We had one recurrence in the same child one month after the primary operation. The mass was reduced a second time, and the child made a complete and permanent recovery. There were two cases of evisceration from the opening of the operative wound. These wounds should be closed with appropriate retention sutures.

Mortality rate.—We consider operation the only safe and sane treatment. Of the twenty-six cases operated upon, five died,—a mortality rate of 19.2 per cent. A number of factors enter into the mortality. Other things being equal, the earlier the diagnosis is made and operation resorted to the greater the chances of a speedy recovery. But in some of our cases, even at early operation, the mass could not be reduced and the bowel was gangrenous, while in cases lasting many days the mass was easily reduced and the bowel showed little damage. It is largely a question of mechanics. A strangulated bowel means a grave prognosis.

Nicomors.—The Council on Pharmacy and Chemistry took up the consideration of Nicomors, stated to be a medical preparation for the alleviation of the physiologic effects of nicotine at the request of the Nicomors Products Company. Nicomors comes in the form of tablets which are claimed to contain magnesium peroxid and tannic acid as their essential constituents. It is claimed that with the use of Nicomors the effects of tobacco smoking show very little or not at all. It is even claimed that the preparation has a favorable effect on the stomach and the intestines. The Council reports that the claim that the random use of a mixture of magnesium peroxid and tannic acid has a favorable effect on the stomach and intestines, is without warrant, and that the claim that the ill effects of tobacco smoking can be overcome by the use of Nicomors is not credible and not supported by any acceptable evidence (Jour. A. M. A., July 19, 1924, p. 212).

THE INTERPRETATION OF ABDOMINAL PAIN IN CHILDREN*

THOMAS MYERS, M.D.

St. Paul

It being manifestly impossible to do justice to so extensive a subject in a brief paper, only some of the commoner conditions, the causes of which are frequently overlooked, will be emphasized.

Abdominal pain, as a symptom of trouble not necessarily within the abdominal cavity, occurs perhaps more often in children than adults; at the same time, it less often points to surgical conditions within the abdomen than is the case with adults. To some extent, diagnosis is simplified as compared with that in adults. Cholecystitis, cholelithiasis, gastric and duodenal ulcer, carcinoma of the abdominal organs, affections of the female pelvic organs, and tabes dorsalis, so commonly causing abdominal pain in adults, are exceedingly rare in childhood. On the other hand, it must be borne in mind that acute surgical conditions in children require prompt diagnosis, as usually they will not tolerate temporizing to the extent possible with adults.

Because of the tendency for various affections to apparently cause reflex pains in the abdomen, and because of the difficulty in getting the average small child to coöperate in localizing the pain, particular care must be exercised in making the diagnosis. This is commonly not easy, for in addition to the task of evolving a satisfactory history from the nervous mother, there is the inability or unwillingness of the small child to permit a careful examination of the abdomen. Generally the little patient will not do more than vaguely point toward the mid-abdomen as the location of the pain; commonly he will, by crying, make the examination very unsatisfactory. Not the least essential part of the physician's armamentarium, therefore, is an appreciation of the psychology of the average child; he should proceed deliberately and casually to become acquainted with the child, and gain its confidence; then examine the rest of the body, leaving the abdomen to the last. Realizing the susceptibility of the average child to suggestion, he must always be on his guard against prompting admissions without basis.

*Presented before the Ramsey County Medical Society, May 26, 1924.

In infancy, *colic* is the most common abdominal pain. This is most frequent in the first three months of life; it usually occurs at the same time daily—has a predilection for the afternoon and evening. The pain is paroxysmal, appearing and leaving suddenly; it is usually relieved by pressure or removal of flatus. Fever is absent. It is due usually to distension of the intestines. Gastric colic may occur, due to over-distension of the stomach by food, gas or air, and appears during or just after feeding. A pathologically tight anal sphincter may cause severe paroxysmal pains with severe distension of the colon; it is promptly relieved by the rectal tube.

Colic covers a multitude of diverse conditions in infants. Most babies tend to draw the thighs upward when crying, which is immediately interpreted by the onlookers to mean that the baby has pain in the abdomen. The trouble may be due to hunger, distress from overfeeding or too frequent feeding, indigestion from improper milk mixtures, constipation or diarrhea, with attendant gas formation, an over-tight belly-band, too much clothing and covers, eczema or chafing, otitis media, neuropathy (the desire of the spoiled child to be rocked), painful dentition, rickets, or scurvy.

Pylorospasm and *pyloric stenosis*, frequently manifesting themselves during the first three months of life, may cause cramp-like pains accompanying the peristaltic waves of the stomach, and are usually relieved temporarily by vomiting of a projectile type. These waves can often be seen through a thin abdominal wall, long before a pyloric tumor can be palpated.

Intestinal intussusception, comparatively common in infancy and early childhood, does not always cause severe paroxysmal pains after the onset. A mild pain may appear subsequently at fairly regular intervals, shown by only slight squirming or wincing on change of position. The child may cry for a moment until relieved by emesis. Shock is very often absent. The child usually lies quietly, preoccupied, not playful or normally interested in his surroundings. A toxic look often develops, especially later. Tympany is usually absent. It is necessary to distinguish this condition from enteritis or colitis, as often stools are passed, or produced by enemas, which contain blood. In enteritis the blood and mucus are quite separate from the feces; in intussusception the first stool or two may be normal, but the later ones con-

tain considerable blood and thin jelly-like mucus, intimately mixed with the feces, and possess a characteristic fleshy odor. Occasionally blood may not appear if the ileo-cecal valve is held closed, and not much of the colon is involved.

It is most important to seek the typical sausage-shaped tumor; this may be hard to make out because of the muscle spasm in the abdominal wall, or if too high in the abdomen, or too low in the pelvis. A general anesthetic may be necessary for satisfactory examination. Rectal examination is very important, but may be negative if the mass is high in the abdomen. Rectal examination can be practiced on even small infants, and is valuable in many conditions. Thorough lubrication of the examining finger is essential, and the little finger should be used when possible, that tears of the rectal mucosa with resulting bleeding may not thus occur to confuse the examiner. The tumor in intussusception may at first be felt in the transverse colon; later in the descending colon or rectum; it may even protrude from the anus.

The following case illustrates problems arising in diagnosis:

CASE 1. H. W., male, age ten months, weight 23 pounds. Previous history largely negative. He was doing well until suddenly at noon he began to vomit forcibly every hour or hour and a half. He would wake suddenly with a cry, and double up as though in pain, relieved for a while by emesis. The vomitus included bile. He had frequent hiccups and seemed weak and exhausted. He was seen by Dr. T. L. Birnberg at 6 P.M., who ordered an enema; this produced a dry, hard stool, followed by a large soft stool mixed with bright red blood and serum. He seemed better thereafter, did not cry, was more playful and apparently had no more cramps. Vomiting stopped for one and a half hours, when he vomited twice. He took water freely and retained it.

Examination showed a well nourished child, slightly fussy, but whose attention could be distracted by toys. The head, throat, and chest, were entirely negative. The abdomen was relaxed, soft and not tender on the left side. The right rectus was rigid and tender, just above the umbilicus, and while a definite mass could not be felt due to the rigidity, surgical pathology was suspected, and operation was advised. As the child seemed so much better since giving the enema there seemed a strong likelihood that an intussusception had occurred and had been relieved, and the parents were at first strongly opposed to operation. The rigidity in the right rectus, even though no mass could be felt by rectum, suggested that waiting was not justifiable, and the abdomen was opened by Dr. W. C. Carroll. Under the anesthetic a mass could be made out under the right rectus more easily, and this was found to consist of about six inches of the ileum invaginated into the cecum. This was separated without difficulty. The appendix was dark red and angry looking but was not removed. A complete recovery ensued.

Subacute intussusception as described by Bergstrom² causes intermittent and less severe pain; the vomiting is not continuous; the shock is less severe; repeated bloody stools are usually present. Obstruction is not complete, so less gangrene develops, and the diagnosis is often delayed until the condition is present a week or more. An abdominal tumor can usually be made out, although the assistance of a general anesthetic may be required.

Recurrent partial intussusception occurs more often than is recognized. It is characterized by repeated attacks of severe cramp-like pains across the abdomen, emesis, constipation, blood-streaked stools at times, and occasionally accompanied by a palpable tumor in the upper abdomen which disappears spontaneously. These attacks may recur every few months and may terminate in a complete intussusception, or require fixation of the ileum to the cecum and ascending colon to prevent recurrence. The following case illustrates the condition:

CASE 2. J. G. C., male, age eleven months, weight 18 pounds. He is being nursed seven times daily; gets no other food. Appetite is fair. Sleeps poorly. Nervous and irritable. Usually constipated. About seven weeks ago began to have attacks of colic accompanied by moderate vomiting; three of these occurred about one week apart. A month ago he had measles and five days later he had severe pains in the abdomen, off and on, for three or four days; vomited repeatedly; was blue, cold, and unconscious for a few minutes at a time. The mother said a mass could be felt in the region of the stomach for a few hours. He was given enemas to relieve him, producing stools containing blood and mucus, but very little fecal matter at first. The condition then improved and he was well, aside from constipation, until twelve days ago when he had another attack, lasting three days. He had severe pain at intervals, with frequent vomiting, and slight fever. Bright red blood appeared in the stools twice on the first night. The mass appeared several times during the attack. He was blue, cold and unconscious during the pains for a few moments according to the mother.

Treatment to prevent recurrence consisted in slowly adding solid food to his diet. This relieved his constipation, enabled him to put on weight, and improved his disposition. The increase in diet should serve to thicken the mesentery with fat and so lessen the likelihood of recurrence. No attacks have occurred since.

Abdominal pains accompanying *acute grippal infections, tonsillitis, etc.*, are very common in childhood, as has been emphasized by Brenneman³. The pains are usually intermittent, may be quite severe, and often give the patient much more concern than the underlying infection. They are usually located near the umbilicus but occasionally are diffuse or on one side. The pain is much worse

than the tenderness, quite the reverse of the case in appendicitis. It is probably due to inflamed mesenteric and retroperitoneal glands, which have been found in such cases where laparotomy was mistakenly done or when coming to autopsy. Infection of the glands may be hematogenous or due to swallowing of bacteria. Occasionally these cases also present diarrhea and vomiting, representing the cases probably justly called intestinal influenza. Peritonitis has been known to occur due to supuration of such a gland. The pain seldom outlasts the other evidences of infection. When prolonged it may be responsible for the so-called umbilical colic of unknown cause.

Lobar pneumonia causes abdominal pains so frequently in children, and is so readily mistaken accordingly for appendicitis, that their differential diagnosis is worthy of careful consideration. Diaphragmatic pain referred to the right lower quadrant of the abdomen, associated with vomiting, frequently is the initial symptom of pneumonia, and as Riesman⁴ said recently, "There is but one good rule to follow, and that is in every case of acute abdominal trouble to make a thorough examination of the chest."

White¹⁰, Hagaman⁶, Adams and Berger¹ have likewise emphasized the frequency with which pneumonia may simulate appendicitis. The last mentioned observers reported observations on a series of 145 cases of lobar pneumonia, of whom only sixty-six, or 45 per cent, were sent in with a diagnosis of pneumonia, while twenty-five, or 17 per cent, were sent in with a diagnosis of appendicitis. The latter figure seems far higher than is our experience, but illustrates how often these conditions are mistaken. It is quite likely that not a few of the cases of so-called ether pneumonia are actually primary pneumonias, operated on mistakenly for supposed acute abdominal pathology. Adams and Berger present admirably the differential diagnosis which is herewith in part quoted:

PNEUMONIA	APPENDICITIS
<i>Chest Pain and Cough:</i>	
Usually, but not always, present or ascertainable.	Almost never present.
<i>Abdominal Pain:</i>	
Often present (34 per cent of series). Usually higher in abdomen. Usually worse on inspiration. Often more severe and distressing. Lasts several days.	Always present. Usually lower in abdomen. Not affected by inspiration. Often intermittent.

PNEUMONIA

APPENDICITIS

Emesis:

Quite frequent (60 per cent), especially at onset.

Occurred in 68 per cent of cases.

Appearance:

Look very sick; flushed; fussy and irritable; toss about in bed.

Do not look so sick (except in severe cases). Lie quietly; no complaint (except when abdomen is palpated).

Respiration:

Short, rapid, shallow, with an expiratory grunt. Abdominal breathing; alae nasi dilated.

Quiet, not very rapid. Breathing tends to become costal in type later.

Temperature:

Usually 103° or above.

Often not over 99°, rarely 101°.

Pulse:

100 to 140.

Seldom over 100 to 110.

Onset:

Usually preceded by a cold.

No preliminary illness.

Respiration-Pulse Ratio:

Usually increased from 1:4 to 1:3, or 1:2.

Usually normal, 1:4.

Leucocyte Count:

Usually over 20,000.

Seldom over 20,000, unless abscess is present.

Lung Signs:

Definite signs are absent in 40 per cent during early stage.

Absent.

Tenderness in the Abdomen:

Tenderness seems more severe and more superficial, is not well localized, but is diffuse over a fairly large part of the abdomen, although varying in degree. Is usually higher in abdomen.

Pressure on left side causes no change in the pain.

Rectal examination is negative.

Tenderness may be slight, is not as general or as severe; is more readily localized usually to a small area in the right lower quadrant. It is deeper in abdomen and required often deeper pressure to be elicited. Is usually near McBurney's point, though in children may be higher. Pressure on left side of abdomen often causes referred pain in the right side. Rectal palpation often reveals local tenderness on right side.

Rigidity:

Often more severe than uncomplicated appendicitis.

Often very little rigidity, especially in early stage; increases if abscess or peritonitis threatens.

average case of appendicitis, and the change in respiration is all-important as a differentiating symptom. Finally, however, the safest procedure is to always require an x-ray picture of the chest if possible, before operating for appendicitis in children.

CASE 3. H. J., male, age two and three-fourths years. Two weeks ago while out of the city he was taken sick suddenly with severe pains in the abdomen; temperature was 106° to 107° for two days. No vomiting occurred. The pains lasted for two days, but he complained of soreness for a few days afterwards. The mother states that he would cry out and hold his sides whenever he would cough or breathe deeply. The case was diagnosed as stomach trouble. Since then he has been weak, pale, tired, wants to be held, refuses food, breathes rapidly, and is short of breath frequently. He contracted a slight cough just before his illness, but it was at no time very severe.

He was then seen by another physician, who, according to the mother, did not take his temperature or examine the chest, but diagnosed stomach trouble. When seen by us two weeks after he first took sick his temperature was 100.7° rectal; the chest showed complete flatness of the entire left side, with some displacement of the heart and distant bronchial breathing over the left lung. X-ray showed effusion almost filling the left chest. The Pirquet test was positive. Aspiration revealed considerable thin, clear, yellow fluid. The diagnosis was evidently lobar pneumonia with tuberculous pleurisy. The child has since improved considerably under rest and building-up treatment, with ultra-violet ray exposures.

In early appendicitis the pain is often referred to the epigastrium or umbilicus. Occasionally in young children the appendix is found higher and to the left, where it lies during fetal life, and may thus give atypically located pain and tenderness. Pain is much more severe in obstructive appendicitis due to a concretion. Emesis is much more frequent in children than adults, and, according to Fraser⁵, if vomiting is severe, it suggests distention of the appendix by its contents, and probably early perforation. Pelvic appendicitis may cause pain on urination, if the appendix lies against the bladder, or diarrhea if near the rectum. If near the obturator internus muscle it causes rigidity, and consequently pain on flexing the thigh inwards. The retrocecal appendix often causes pain and tenderness largely in the back, and may not cause emesis. Early diagnosis is essential in appendicitis in childhood, as rupture of the appendix frequently develops in twenty-four hours or less; furthermore the omentum is short, thin and veil-like in early childhood, and does not provide the protective power exhibited by it later. In consequence general peritonitis is a more common and earlier

It is thus seen that pain, tenderness, rigidity and vomiting often accompany pneumonia, particularly when the process is in the right base; that the patient usually looks much more acutely ill than the

development than in adults, and the relatively lower resistance to general acute toxemia gives it a much more ominous portent.

Inflammation of *Meckel's diverticulum* should be properly mentioned, as the pain, as well as the other symptoms, is seldom distinguishable from that of appendicitis. While a rare condition, the majority of the cases occur in children.

Green-apple colic, as well as that arising from other dietary indiscretions, occurs mainly in older children, and may cause very severe colicky pains, accompanied by vomiting, diarrhea, fever and occasionally convulsions. The pains are usually in the stomach region, and tenderness is usually absent. The history of the offending food, together with the relief usually produced by removal of it, generally clears up the diagnosis.

Tuberculous peritonitis is more common in children than adults, probably because of bovine tuberculosis transmitted by milk; also because sputum is swallowed more than by adults. It causes chronic abdominal pains, varying in every respect, especially depending upon the stage of the disease—whether distention, effusion or adhesions are present. The indefinite doughy masses often palpable, with the insidious onset, slight fever, and positive Pirquet test, assist in the diagnosis.

Acidosis frequently is accompanied by severe pains across the middle of the abdomen centering around the umbilicus. Nausea and severe repeated vomiting occur, with temporary relief of the pain by emesis. Children frequently confuse nausea with pain, thus misleading the examiner. Later severe pain may be due to straining of the abdominal muscles by repeated vomiting, and superficial tenderness may be present. The child is drowsy and often looks very ill; the abdomen is retracted, fever is usually present; acetone is present on the breath and in the urine. The alveolar air shows a low carbon dioxide tension.

Recurrent acidosis, or cyclic vomiting, may present the foregoing picture frequently, as any acute infection or digestive upset may precipitate an attack. Prompt measures to restore the disturbed metabolism and neutralize the ketone bodies are necessary, as very severe prostration or death may ensue.

Pyelitis and pyelocystitis occur frequently in childhood and are a frequent cause of abdominal pains not apparently associated with the kidneys.

Occasionally the pains are very sharp; they may be sufficiently severe to draw the attention away from other symptoms. More often they are vague and indefinite, usually near the umbilicus, but also often over the kidney regions. The pain is usually relieved by urination. High fever, vomiting, marked malaise, frequent burning urination and a peculiar pallor generally accompanying pyelitis. The condition is frequently overlooked because of the failure to obtain specimens of urine from small children, particularly girls, in whom 75 per cent of the cases occur. Pus may not be present at the onset in a few cases, but the urine will be swarming with colon bacilli, as has been shown by Ramsey³. The following case illustrates the difficulty occasionally present in attributing the pain to pyelitis.

CASE 4. D. K., female, age six years. She has had frequent attacks of severe pain in the abdomen for about three years. Previously they occurred about every three months, lately every two or three weeks. The pains last about two hours, do not radiate or cause her to double up. She usually vomits several times during the attack, is sometimes feverish, and the abdomen is very tender for a few hours afterward. Urination is usually frequent. About one and a half years ago the condition was diagnosed as appendicitis and operated, but no particular relief was obtained. When first seen by us she was in a typical attack, and the urine was full of pus. Under appropriate treatment she has improved materially and has had no attacks for over two months, while the urine is almost normal. There have never been red blood cells seen in the urine. X-ray picture and Pirquet test were both negative.

Calculi in the kidney, ureter and bladder occur occasionally in children, and cause severe paroxysmal attacks of pain, with fever and pyuria; usually a little blood may be found in the urine. The pain tends to locate more in the abdomen than in adults. The following case is illustrative.

CASE 5. J. C. F., boy, age six years. He recently contracted mild scarlet fever and, while convalescing, red and white blood cells were very frequent in the urine; but very few casts and only a little albumin were present. During the following month he developed two attacks of severe pain in the mid-abdomen radiating down the bladder region, or passing from the genitals around the anus and up the sacrum, occurring just after urinating. On one occasion he had pain in the right side of the abdomen for a half hour, not related to urination. The urine showed considerable pus and blood, but no casts and only a faint trace of albumin. An x-ray picture showed a stone at the junction of the right ureter and bladder, and when repeated a month later, was unchanged in position or shape. Operation has been advised.

Acute ureteritis may present symptoms exactly like those of an actual stone in the ureter; it may also simulate appendicitis. It may follow the pas-

ing of a stone, or may be due to bacillus coli infection.

Pain due to a distended bladder, as pointed out by Brenneman⁴, is not uncommon, and is often due to phymosis, balanitis, or ulceration of the external urinary meatus. The pain may be quite intense, and the infant in severe discomfort until relieved, either voluntarily or by catheter. The abdomen reveals in these cases the typical pear-shaped tumor in the bladder region.

Gastric ulcer, while very uncommon in children, does occur, and presents the usual history of pain during or soon after meals, located in the epigastrium, and relieved by vomiting.

Gastric hyperacidity occurs occasionally in children, and causes a dull, annoying pain above the umbilicus, usually before meals, and especially before breakfast. It is occasionally severe and colicky. The child may be awakened by it. This condition, as pointed out by Kerley and Lorenze⁷ is usually secondary to diet errors, or enteroptosis. Nausea, especially before meals, relieved by taking food may be the only symptom. The appetite is usually poor, eructations of gas, belching, and constipation commonly occur. X-ray examination usually shows a hypo-motility of the stomach and often gastropotosis. The gastric contents show high free and total acidity.

Acute stitch is a common complaint in older children, occurring when running or walking and causing pain below the ribs on either side. It is apparently only a strain of the abdominal muscles, and is not associated with tenderness, swelling or fever.

Retention of the testis may cause severe pain if the testis swells as it may do at puberty. It may cause pain and local tenderness in the iliac fossa. Fever is absent. Examination of the scrotum will suggest the source of the pain.

Henoch's purpura, though rare, deserves mention because it causes severe abdominal pains, with blood in the stool, and thus may be confused with intussusception. A purpuric rash elsewhere on the body makes differentiation possible.

Acute pericarditis may cause severe pain and

tenderness in the abdomen, and, combined with fever and prostration, may often resemble peritonitis. Incompensated heart cases often complain of pains in the abdomen, possibly due to enlargement of the liver, and gas pressure in the stomach.

Umbilical hernia, in older children, apparently causes a chronic vague pain in the mid-abdomen, which may require operation for relief, even though the hernia may be small.

Neuropathic pains, neurosis or hysteria occasionally are the only apparent explanation for some cases of abdominal pain where no definite localization or evidence of organic pathology is present. Such a diagnosis should be made reluctantly in any event, as the probability is that most of these do have some kind of trouble of minor nature, but, occurring in nervous, high strung, temperamental children, born of neuropathic or neurasthenic parents, they have a low threshold of consciousness, and so feel trivial pains much more keenly than other children. Occasionally the pains are fictitious, due to a desire of the child to avoid eating foods he dislikes, or to avoid disagreeable tasks—and the pain is quickly lost when the suspected cause is eliminated.

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ATTEMPTED PREVENTION OF MEASLES IN PRIVATE PRACTICE*

STUART W. ADLER, M.D.

Winona Clinic

Winona, Minnesota

It is gradually becoming more generally accepted that measles, with its severe bronchial and upper respiratory inflammation, is no longer to be looked upon as a trifling affair. Because of a heavy death rate among youngsters, and because of the many unfortunate sequelæ, it commands our respectful consideration.

There are several groups of cases which particularly warrant attempted avoidance of this disease. We may mention: babes at breast of mothers known never to have had measles; feeble or debilitated infants or children; children sick with respiratory infections; and, in general, all cases of infants and very young children. There are also those cases where it is particularly desired to do everything which may possibly assist in preventing measles, even when the individual is older or one in good health.

Institutions in which measles as a cross infection is an unwelcome guest have, for a number of years, been successfully using convalescent measles serum as a prophylactic in cases of exposed non-immunes. The experience here and elsewhere has demonstrated quite conclusively that, in proper dose, serum, given within the first four days after exposure, prevents measles. Most authors agree that prevention is unlikely if more than five days have elapsed between first exposure and institution of treatment.

Serum from recent convalescents contains antibodies in such concentration that relatively small doses will afford protection. That taken from persons having had the infection years previous, while containing sufficient protective substance to insure the donor against secondary attacks of the disease, protects others only when larger sized doses of blood or serum are used.

Recent work of the Board of Health of New York City is a notable example of the extension to private practice of the benefits of this preventive. Prepared in a large laboratory, from convalescent measles cases, plasma is now available for the use of physicians in attempting prevention of the dis-

ease among very young children with known exposures. A personal communication from Dr. Wm. Park, director of the bureau of laboratories, states that since January of this year the department has given plasma to about 1,500 little children—as he says “with excellent results, either complete prevention or very, very mild attacks.”

Few, if any of us, can go into the open market and secure serum or plasma. Serum prepared by institutions is rarely available for use outside their walls.

This paper is being presented for the purpose of showing what can be done in private practice with the means at hand. I refer to the injection of whole blood from measles convalescents in the family.

The use of whole blood as described in this paper has been reported by but few authors. Recently Zingher reports the use of the method in thirty-one cases treated in institutions where the exposure had taken place. His cases were injected on the second to eighth days after exposure with an average of 19 c.c. of whole blood. Of this group, three developed measles. They were cases that were injected on the seventh and eighth days. Except for two adults, all were children under seven years of age.

Less favorable results are shown in the cases herewith presented. The results are offered as indicating what may be expected of cases handled under the conditions with which the majority of physicians find themselves working. The situation one meets in attempting this sort of thing in a home is materially different from its application in the infectious disease hospital.

The material presented itself during an epidemic of measles and whooping cough occurring in a city of 20,000. The two infections went hand in hand. Over 500 known cases of measles occurring between January and May, 1924, represents, as usual, but a part of the estimated number.

The data presented are meager for the reason that they were secured by the writer during a very busy period. All cases were handled in the homes and the follow-up work was done whenever opportunity presented. A surprising number of people of the less-enlightened class feel that measles requires no physician, save occasionally for a single visit to diagnose the initial case in the family.

The project was to secure blood from some member of the family for injection into the non-immunes who had had known exposure to measles. It was hoped to procure prevention or modification of the

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measles in the secondary cases. Donors included parents or blood relatives who had had measles at some remote period, and brothers or sisters recently suffering from the infection. In most cases these latter were the source of exposure of the recipients.

The technic is extremely simple. Blood is drawn with aseptic precautions from the arm veins, a 30 c.c. syringe with rigidly attached needle being used. As soon as the blood is secured a second needle is substituted. The injection is made at once, either intramuscularly or subcutaneously. There has been no difficulty experienced in completing the entire procedure before the blood clots. No citrate was used, for it proved unnecessary. At most but three to four minutes need be consumed in completing the process for one or two recipients.

In only one case was any difficulty encountered in securing the amount of blood previously decided upon. The donor in this instance was four years old.

No reaction followed the injections, and very little discomfort was reported.

The following brief protocols of the cases are summarized in the accompanying table.

Case 1.—R. P., female, aged 2, was under treatment for whooping cough of about five weeks' duration, when she was exposed to measles by her brother, aged 6.

Jan. 17. Brother seen with typical measles in early eruptive stage.

Jan. 21. Brother donor of 20 c.c. whole blood, injected into R. P. intramuscularly without incident.

Jan. 28. Exposure to secondary case in sister seen on this date with full rash of typical measles.

No measles developed in the treated child after either of the exposures. Whooping cough gradually improved. Donor had temperature of 99 and was still coughing on the day blood was taken. He had an uncomplicated recovery.

Case 2.—B. L., male, 14 months old, weight less than 15 pounds. Gave history of several attacks of pneumonia and general weakness. Examination revealed a cleft palate, rickets and definite undernourishment. He could not hold up his head nor sit unsupported.

Jan. 7. Sister, E. L., seen with typical measles in the early eruptive stage.

Jan. 10. Sister had acute otitis media with temperature of 99. Ear opened under chloroform anesthesia and at the same time 10 c.c. blood taken. This was injected intramuscularly into the B. L. without incident. Patient was sent to home in a neighboring town.

Jan. 17. Reported that there was a very sparse rash beginning this date and lasting two days and accompanied by a very slight catarrhal phase with slight cough. Baby was hardly sick at all.

Feb. 12. A few weeks later it was reported that he was gaining weight and was considerably stronger.

Case 3.—D. S., male, age 16 months. About ten days previously had had a severe upper respiratory infection in common with all the other members of the family. Has mild rickets.

Feb. 11. Brother, M. S., had "fever and cold." No Koplik's spots or rash.

Feb. 12. M. S. Koplik's spots seen and sparse eruption on the face.

Feb. 14. M. S. Eruption at its height. Moderately severe measles.

TABLE
RECIPIENTS—MEASLES CONVALESCENT BLOOD

CASE No.	SEX	RECIPIENT		RELATION	DONORS		AMT. BLOOD C.C.	ROUTE USED	INTERVAL FROM FIRST EXPOSURE	RESULTS
		AGE Mo.	DIAG.		AGE YRS.	HAD MEASLES PREVIOUSLY				
1.	F	24	Whooping cough	Bro.	6	7 days	20	Intramuscular	7 days	No measles
2.	M	14	Malnutrition	Sis.	10	7 days	10	Intramuscular	7 days	Very, very mild measles
3.	M	16	Grippe	Bro.	6	6 days	10	Intramuscular	6 days	Very, very mild measles
4.	M	36	Grippe	Bro.	6	7 days	10	Intramuscular	7 days	Very mild measles
5.	M	60	Whooping cough	Sis.	6	7 days	10	Intramuscular	7 days	Typical measles
6.	F	24	Whooping cough-pneumonia	Sis.	7	7 days	8	Intramuscular	7 days	Very mild measles
7.	F	60	Malnutrition	Bro.	13	8 yrs.	30	Subcutaneous	4 days	Very, very mild measles
8.	F	12	Well	Sis.	5	8 days	2.5	Intramuscular	8 days	Mild measles
9.	F	30	Well	Moth.	32	22 yrs.	15	Intramuscular	5 days	Very mild measles
10.	F	72	Well	Moth.	32	22 yrs.	15	Intramuscular	5 days	No measles
11.	M	20	Upper-resp. infect.	Moth.	27	20 yrs.	30	Subcutaneous	5 days	Mild measles
12.	F	60	Well	Moth.	24	Childhood	30	Subcutaneous	5 days	Mild measles
13.	M	18	Whooping cough	Uncle	14	6 yrs.	15	Intramuscular	8 days	No measles
14.	M	48	Whooping cough	Uncle	14	6 yrs.	15	Intramuscular	8 days	No measles
15.	M	18	Upper-resp. infect.	Bro.	7	6 days	10	Subcutaneous	6 days	No measles
16.	M	24	Recent whooping cough	Moth.	33	Childhood	30	Intramuscular	4 days	Very mild measles
17.	F	24	Recent scarlet fever	Bro.	16	6 days	12.5	Subcutaneous	6 days	Very, very mild measles
18.	M	96	Well	Bro.	16	6 days	12.5	Subcutaneous	6 days	Very mild measles

Feb. 16. M. S. Temperature 99. Cough still fairly bad. In good general condition. Donor of 20 c.c. blood; 10 c.c. given intramuscularly to D. S.

Feb. 25. D. S. had scant rash on face and body. Koplik's spots present. He was cross, had very slight elevation of temperature, eyes did not bother him. Very slight cough. After one day more of the rash, it faded and he had no other symptoms or signs.

Case 4.—B. S., a male, aged 3. Exposure same as Case 3. Cases 3 and 4 are brothers.

Feb. 16. Ten c.c. blood from same donor as previous case, injected intramuscularly into B. S.

Feb. 23. B. S. had conjunctivitis, Koplik's spots, moderate eruption on face and body. Temperature 102, slight cough not sufficient to annoy patient. He was active and played about. Appetite unimpaired.

Feb. 25. Eruption fading. Not apparently sick at all. Mother's comment about cases 3 and 4: "Neither was what you could call sick."

Case 5.—B. H., male, aged 5. Was in school up to February 4.

Feb. 6. With sister, kept out of school because sister's condition was diagnosed whooping cough. Vaccine treatment was started for both children. B. H. had been coughing for two weeks but on this date neither child showed any signs of measles.

Feb. 13. Sister, aged 6, had a coryza and showed Koplik's spots. She had a very annoying cough.

Feb. 14. Sister had typical measles eruption and her case progressed as an average moderately severe case of measles.

Feb. 17. Sister, donor of 10 c.c. blood given intramuscularly to B. H., who on this date showed no signs or symptoms of measles.

Feb. 20. B. H. had typical measles with Koplik's spots and early rash. His case was moderate but did not seem to have been in any way aborted. From the time relations it seems highly probable that he was exposed to some other case than his sister. Probably exposure occurred in school.

Early in March both children were out of doors convalescing from whooping cough.

Case 6.—M. B., female, aged 2.

Feb. 12. Patient has had whooping cough for six weeks. When seen on this date had a definite broncho-pneumonia and was moderately sick. Half sister, E. J., had slight generalized eruption but no Koplik's spots.

Feb. 13. Koplik's spots present in mouth of sister, E. J. Prodromal rash gone.

Feb. 14. E. J. No rash present but there is an increasing cough and coryza.

Feb. 15. E. J. Cough very severe. Rash appeared and rapidly spread over the entire body.

Feb. 17. E. J., donor, 10 c.c. blood. Donor had no fever but presented an otitis media of mild type. Eight c.c. blood given intramuscularly to M. B., who continued to have scattered patches of broncho-pneumonia for several weeks with associated whooping cough paroxysms.

Mar. 3. M. B. presents scant rash on face.

Mar. 4. M. B. shows rash all over body. No Koplik's spots made out. No increase in catarrhal phase or temperature rise above that accompanying the pneumonia.

M. B. gradually recovered from her pneumonia and cannot be said to have been made appreciably worse by her mild measles.

Case 7.—R. K., female, aged 5. In school till March 13. No definitely known exposures to measles.

Mar. 13. Exposed to brother, J. K., who had "cold" and Koplik's spots but no rash. He ran the course of moderately severe measles.

Mar. 14. M. K., aged 13, older brother, in good health, who had measles at the age of five, was donor of 30 c.c. blood given subcutaneously to R. K.

Mar. 26. R. K. presented ten to twelve isolated macular lesions on trunk.

Mar. 27. The eruption consisted of 30 to 40 lesions on face and body. No Koplik's spots, no fever, no cough or coryza.

Mar. 28. Rash has entirely disappeared.

Case 8.—B. G., female, aged one year. Perfectly well.

Feb. 2. B. G. exposed to measles by sister, M. G., who presented early eruption and Koplik's spots on this date.

Feb. 8. M. G., donor of 2.5 c.c. blood, injected intramuscularly into B. G. More blood could not be secured.

Feb. 14. B. G. had typical measles eruption and questionable Koplik's spots but was not very sick. She did not cough as hard as her sister. She remained quietly in bed for one day, but was up and about the rest of the time. Mother said, "She was not as sick as sister."

Apr. 15. Both children now entirely well.

Both children passed directly from measles into typical attacks of whooping cough.

Case 9.—M. R., female, two and a half years old. Well. Never known to have had measles.

Mar. 8. Exposed to sister, H. R., who had fever, coryza, Koplik's spots, cough and moderate eruption on face and trunk when seen this date.

Mar. 9. Mother, N. R., aged 32, donor 15 c.c. blood injected intramuscularly into M. R. The mother, who was perfectly well, had had measles when 10 years of age.

Mar. 18. M. R. wanted to be held.

Mar. 19. Played all day. No symptoms.

Mar. 20. Vomited in the evening.

Mar. 21. Presented scant rash on face, a few Koplik's spots and moderate rash on trunk when seen. She had no fever, no cough, no coryza at any time. Slept well. Appetite unimpaired.

Mar. 22. Rash gone. Child normal in every way.

Case 10.—Harriet R., female, aged six and a half years. In school up to March 8. Cases 9 and 10 are sisters.

Mar. 8. Exposure same as Case 9.

Mar. 9. Mother donor of 15 c.c. blood given intramuscularly to Harriet R.

Apr. 15. Up to this time Harriet R. presented nothing abnormal. No suggestion of measles at any time.

Case 11.—Robert B., male, aged 20 months. Had slight cold. Exposed to sister, Ruth B., aged 3.

Mar. 16. Ruth B. had coryza and conjunctivitis.

Mar. 19. Ruth B. had Koplik's spots and early maculopapular rash on face and trunk.

Mar. 20. Mother, donor, aged 27, had measles at age of seven. Thirty c.c. blood injected subcutaneously. Mother was perfectly well.

Mar. 29. Robert B. slightly "fussy." Nose running. Cough.

Mar. 30. Robert B. coughing harder. No Koplik's spots.

Mar. 31. Robert B. has typical measles rash.

Case ran course of average mild measles.

Case 12.—J. L., female, aged 5. Perfectly well.

Mar. 15. Brother seen with typical measles. Koplik's spots, rash on face and body in early stage.

Mar. 16. Mother, aged 24, perfectly well, donor of 30 c.c. blood injected subcutaneously into J. L. Mother known to have had measles in childhood.

Mar. 24. J. L., cough and sneezing this date for the first time. Was slightly "peppless" the day before. Eruption on face. No Koplik's spots made out. Slightly feverish.

Mar. 27. J. L. ran course of moderate measles without particular discomfort. Mother commented, "She did not have nearly as much cough as brother."

Case 13.—B. F., male, aged 1.5 years. Suffering from whooping cough of about five weeks' duration.

Feb. 24. B. F. exposed to baby in neighboring family who developed measles. Exposure was in catarrhal phase of what proved to be typical measles.

Mar. 3. Uncle, aged 14, in good health, donor of 30 c.c. blood. He had had measles at age of 7. Fifteen c.c. blood injected into B. F. intramuscularly.

Apr. 1. Nothing suggesting measles has developed up to this time.

Case 14.—E. F., male, aged 4 years. Has whooping cough.

Feb. 24. Exposure same as Case 13.

Mar. 3. E. F. injected with 15 c.c. blood from same donor as Case 13.

Apr. 1. Nothing suggesting measles has developed up to this date.

Case 15.—S. G., male, aged 18 months, had suffered from repeated upper respiratory infections.

Apr. 7-12. S. G. exposed to brother, W. G., throughout course of typical measles.

Apr. 12. W. G., aged 7, donor of 10 c.c. blood injected subcutaneously into S. G. Donor's temperature was normal and there were no complications of his measles.

May 1. No evidence suggesting the possibility of measles has occurred.

Case 16.—D. M., male, aged 2. Recovering from whooping cough.

Apr. 5. Brother, F. M., seen with typical measles in early eruption stage.

Apr. 5. Mother, aged 33, in good health, donor of 30 c.c. blood given D. M. intramuscularly. The mother had had measles in childhood.

Apr. 14. D. M. a little fretful during night.

Apr. 15. D. M. has scant rash but no coryza. He has an occasional coughing spell of the type noted during earlier weeks of whooping cough. Mother's comment: "It was a very mild case. You wouldn't have known it to be measles if it had not been for the rash."

Case 17.—M. K., aged 2 years, female. This patient was released from scarlet fever but a week before this exposure to measles. She had otitis media as a complication of her scarlet fever.

Apr. 14-18. A. K., aged 16. Brother had the catarrhal and early eruptive stages of measles, exposing M. K. and L. K. (Case 18).

Apr. 20. A. K., temperature 99. Still coughing quite hard. Donor of 25 c.c. blood. Twelve and a half c.c. injected subcutaneously into M. K.

Apr. 28. M. K. presents twenty to thirty scattered lesions on face and back. These are macules of type seen in early measles. No Koplik's spots. No enanthem. Temperature 100.8-R. For several days has had a very slight coryza. No cough at any time.

Apr. 29. Rash increased slightly for twenty-four hours from onset, then disappeared.

Mother said, "She does not act as though she was sick at all."

Case 18.—L. K., male, aged 8. Perfectly well. Cases 17 and 18 are brother and sister.

Apr. 14-18. Same exposure as Case 17.

Apr. 20. L. K. received 12.5 c.c. blood subcutaneously from A. K.

Apr. 26. L. K. slightly nauseated.

Apr. 28. L. K. temperature 102.5. Throat red. Distinct enanthem. Typical salmon colored maculo-papular eruption on face and body, confluent on face. No cough, conjunctivitis or coryza. He said: "I don't feel sick a bit." Up and about, playing.

Cases 17 and 18 reported to be quite normal by the 30th of the month.

COMMENT

The number of cases here presented is small, and there exists marked dissimilarity among them in some essentials for comparison. The conclusions are drawn with a full appreciation of the fact that further study may alter them.

In considering the results let us bear in mind that it is rare for young children, who have not had measles, when exposed under conditions existing in the average home, to be spared from infection.

On the average, measles presents a fairly characteristic picture—with the respiratory disturbance of far greater importance than the eruption, or most phases of the systemic involvement. It is with the respiratory tract infection that most of the unfortunate complications are associated.

A majority of workers feel that the lasting immunity from the mild attack of the disease is preferable to prevention, which will probably be followed by a subsequent attack of the disease on later exposure.

Measles with very mild or absent catarrhal phase must be looked upon as a fortunate circumstance, but avoidance of the infection till some later period in the individual's life, a situation in some cases to be desired.

CONCLUSIONS

1. Whole blood from persons convalescent from measles is available to the physician in private practice in many instances where it is desired to prevent or modify measles after exposure of non-immunes.

2. Non-immunes may be temporarily protected against measles by use of proper amount of blood injected early in the incubation period following exposure.

3. Twenty to 30 c.c. of blood from an individual recently convalescent from measles, injected into the non-immune prior to the eighth day after first exposure, is a good working basis for further study of this problem.

4. When prevention is not secured, modifications resulting are distinctly to the patient's advantage. Mild measles has the advantage of conferring permanent immunity in all probability.

5. When blood from recent cases cannot be secured, that from individuals having had the infection at a more remote time should be used in somewhat larger doses.

6. With reasonable care in selecting donors and in carrying out the technic, the procedure is without danger to donors or recipients.

7. The method described is so simple that it can be utilized by any physician caring for measles cases in his private practice.

BACILLUS ACIDOPHILUS THERAPY

Through the use of bacillus acidophilus cultures a transformation of the intestinal flora of man from a proteolytic to an aciduric type can generally be induced. In cases of constipation beneficial effects in the direction of more ready defecations are said to arise. *Bacillus acidophilus* milk has attained the dignity of tentative recognition by the Council on Pharmacy and Chemistry, though this must not be interpreted as a recommendation for the use of the product. Bearing on the question of how bacillus acidophilus milk acts, experiments have been made which indicate that the action is a strictly bacteriological one, and not physical or chemical. It was found that bacillus acidophilus milk from which the bacteria have been removed was practically without effect in its influence on constipation. Regular bacillus acidophilus milk ingested subsequently resulted in an increase in the number of defecations.—*Jour. A. M. A., May 24, 1924, p. 1696.*

THE VALUE OF PROCTOLOGY IN GENERAL PRACTICE*

LOUIS A. BUIE, M.D.,

Section on Medicine, Mayo Clinic
Rochester, Minnesota

It is desirable that practitioners of medicine and surgery should have sufficient knowledge of the common rectal and anal diseases to insure against error in the diagnosis and treatment of such diseases, just as they make it a practice to learn something of the various special diseases, such as of the eye, ear, nose and throat, and of the gastro-intestinal and genito-urinary tracts.

In proctology the technic of examination of the lowest segment of the bowel is simple, and the necessary equipment small. An anoscope, a proctoscope, an inflating bulb, and an electric equipment are required, and every practitioner should familiarize himself with their use. The principles involved in rectal examinations are not difficult, and with very little experience it is possible to examine the bowel up to the sigmoid. The value of this work can be partly appreciated when it is realized that more than 85 per cent of the symptoms referable to this region can be accounted for by pathologic conditions within three inches of the anal orifice.

One need not become experienced in making differential diagnoses of the more obscure conditions found in the bowel. If just enough were learned about the characteristics of a normal rectal mucous membrane to examine above hemorrhoids in order to determine the presence of a cancer before hemorrhoidectomy, a decided step forward would be made.

There are many types of ulcers which affect the rectal mucosa. It will not be possible here to demonstrate their different diagnostic characteristics, but there is one characteristic common to all ulcerations of the bowel: the bleeding of the mucosa when traumatized. Amebic ulcers, tuberculous ulcers, all types from a hyperemia and simple catarrhal or granular proctitis to the most extensive ulcers, will bleed when traumatized. If one is in doubt with regard to the diagnosis, the presence or absence of a lesion may be determined by inserting the anoscope or proctoscope, and rubbing the mucous membrane of the surface of the bowel with a

*Read before the Southern Minnesota Medical Association, Mankato, May, 1924.

cotton swab. A normal mucous membrane will not bleed after such slight trauma.

Malignant ulcers present a characteristic appearance. They are usually single, and the adjacent mucous membrane is not involved, whereas with inflammatory ulcers there is a more advanced involvement of the wall of the bowel, and the tissues adjacent show an inflammatory reaction. In cases of suspected malignancy, specimens for biopsy should not be taken until the day before the proposed operation, since the removal of specimens stimulates the growth of the lesion and hastens metastasis.

In diagnosing high rectal lesions the colon-ray is of inestimable value. Such conditions as carcinoma, diverticulitis, ulcerative colitis, spasm, and stricture can easily be detected in this manner.

Hemorrhoids are the most common of rectal lesions, and may cause many symptoms. This is so true that when a patient consults us, instead of complaining of bleeding, pain, constipation, diarrhea, or any other bowel symptom, he will say, "Doctor, I am suffering with piles." Only too often the doctor agrees with the patient without making an examination. He prescribes a dose of salts and a palliative salve or an ointment for piles, and the patient goes away glad that the doctor did not examine his rectum, and the doctor is satisfied because he did not have to do the disagreeable job.

Statistics based on almost 2,000 cases reveal the fact that 18 per cent of patients who have rectal and sigmoid cancers have been treated or operated on for piles during the period of their symptoms. So, when a patient comes in with the familiar expression: "Doctor, I have the piles", it behooves us to give this patient a fair chance for his life instead of procrastinating and allowing a possibly operable cancer to become inoperable. If we do not find malignancy, we may operate on the hemorrhoids. Any operation which is done carefully will correct this condition. The chief trouble in hemorrhoidal surgery is not the character of the operation, but the fact that there is usually no postoperative treatment. The rectum should be treated after a hemorrhoidectomy in the same manner that any infected wound is treated. The patient's bowels should remain quiet for four days after the operation. It is not necessary to use opiates to "confine" the bowel. The patient will see to it that the bowels do not move. On the fourth night an ounce of mineral oil should be given, and again the follow-

ing morning; after that enough oil should be given to produce one soft stool a day. After each defecation for the following two weeks the bowels should be irrigated with hot water (110° F.), until the water returns clear. Irrigating the wound with a mild medicated solution is very helpful and assists healing.

I would make a plea for more consideration of patients who have rectal complaints, and for the elimination of the physician's antipathy to the examination of the rectum. If a patient says he has piles, he should be examined to see what he means by piles; he may mean anything from constipation to cancer.

DISCUSSION

Dr. W. A. FANSLER, Minneapolis: I feel that we are very much indebted to Dr. Buie for calling our attention to the necessity of rectal examinations and wish to congratulate him upon his excellent paper. I most heartily agree with him that it is little short of criminal to supply a patient with some palliative medication without examining him. Rectal examinations are relatively simple. A Kelly proctoscope costing two or three dollars, a pocket flashlight or good sunlight and the patient in knee-chest position is all that is needed for adequate examination of most cases. Expensive electrically lighted pneumatic proctoscopes are not essential to good work. A simple Kelly tube and the vacuum produced by the knee-chest position does the rest. The sooner the general practitioner begins to make rectal examinations as a routine the sooner will we quit having 20 per cent of the cases of rectal cancer report recent operation for hemorrhoids.

"Patent Medicine" Secrecy.—For years the medical profession has insisted that the real reason that nostrum makers keep the composition of their products secret is (1) for the glamour that such secrecy throws around them, and (2) the fact that so long as the public does not know what is in a preparation the advertiser's imagination is given freer play. The "patent medicine" makers, on the other hand, have maintained that their reason for keeping the composition of their products secret is that the formula is personal property, and, if made known, the market would be flooded with imitations. Recently, however, Standard Remedies, the mouthpiece of the "patent medicine" interests, has admitted that the medical profession was right and the "patent medicine" makers wrong. It stated editorially: "It should be remembered that while a developed formula has a great value, it is the trade name, the advertising, the merchandising skill applied in connection with it that creates its valuable good-will. Ten to one a thorough search through books of formulae will reveal that your own is already known to the medical world. But no one can get the same benefit from it that you have gained unless they spend in merchandising it the same money that you have spent." (Jour. A. M. A., Nov. 11, 1922, p. 1692.)

DIET AND REST IN THE TREATMENT OF
CARDIO-VASCULAR DISEASE*

J. E. CREWE, M.D.
Rochester, Minn.

Much is being written in these days about the chemical balance that is required in the body to maintain health. There must be an alkaline reserve. This is maintained automatically by the kidneys, which eliminate the excess of acid. The urine acidity should not be more than twice that of the body, but it is frequently 100 times that of the body and frequently 1,000 times as acid as the body.† In many of the modern diseases there is a lowering of the alkaline reserve and a condition occurs which we call acidosis, which is the same thing. Why do we hear so much about acidosis, and why is chemical balance lacking in the body? The answer is simple and is comparable to the reason why farmers have poorer crops and more plant disease as they take more and more crops off the soil without replenishing the soil. Virgin upland soil for the most part is alkaline in reaction and crops at first are luxurious and little subject to disease. As repeated crops are taken off they take with them considerable amounts of the bases, lime, phosphorus, soda, magnesia, etc., and the soils become acid, and spindly crops and parasites and disease result.

The same is true in the body. The bases are removed by the modern methods of preparing food and the alkaline reserve is diminished, and we have weaker growth and more disease.

In view of the high urine acidities as mentioned in Doctor Sansum's paper, alluded to above, one might hazard the problematical thought that perhaps in some instances nephritis might be caused by the irritation due to the high acidity of the urine. Experimental work in animals along this line might show some interesting results.

It is believed that excellent and fairly lasting results can be obtained in the diseases mentioned in the title of this paper for the reasons mentioned later. When the alkaline reserve is lowered there is less resistance to infection, which is one of the factors in the cause of these diseases.

The method of treatment outlined below has been

used practically exclusively in the treatment of cardio-vascular disease at the Cascade Sanitarium at Rochester, Minnesota, during the past seven years and a few cases were treated in this manner during the six years preceding that. The classes of cases mentioned include hypertension and diseases of the heart and nephritis. The classification has been somewhat difficult because of frequent association of cardiac disease and nephritis with arteriosclerosis. All cases of hypertension, whether or not associated with heart and kidney involvement, have been classified as arteriosclerosis and the number of cases treated at the Sanitarium during the past seven years was 104 in number. There were eleven heart cases and fifty-six of nephritis. The series of cases mentioned in this paper, while small, deserves consideration from the fact that the method was consistently followed. This does not include numerous other patients who came for other causes and who had slight hypertension or slight cardiac or kidney involvement. Nor does it include numerous other cases with hypotension. With the exception of two cases treated ten and twelve years ago, no mention is made of the cases treated outside of the Sanitarium previous to its establishment seven years ago. Many of the cases were of the severest type, having previously exhausted other methods of treatment.

Practically no drugs were used in any of the cases, the treatment consisting almost entirely of complete rest in bed with large quantities of milk and hot baths and hot packs.

This paper is not a statistical record because many of the cases have not been followed up, but the chief interest lies in the fact that the method has been consistently followed and that the results in most instances have been highly satisfactory. In the beginning the treatment was used empirically but an attempt will be made in this paper to show that this method is based on sound scientific principles. It is well known that, in many cases, rest in bed, and practically no other treatment, will result in a lowering of hypertension and a decrease in the edema in heart and kidney cases, but the results are not so lasting and the general improvement is less than by the method under discussion.

The method, although modified, of course, in different individuals, is, in general, as follows: The patients are kept strictly in bed in the position most comfortable, many patients being unable to lie down in bed. Frequently, nothing is given the

*Presented before the annual meeting of the Minnesota Medical Association, St. Paul, October, 1923.

†Sansum, W. D., Blotherwick, R. N., and Smith, Florence: *Jour. A. M. A.*, p. 883, September 15, 1923.

patients except water and oranges for from one to four days. After the preliminary treatment they are put on milk, beginning, as a rule, with from two to four quarts of rich, raw milk daily (Guernsey usually, but sometimes Holstein). This quantity is increased to from four to seven quarts a day. The feelings are one-half hour apart, from seven o'clock in the morning till eight o'clock at night. The bowels are regulated with enemas. Oranges or orange juice is given twice a day and a dish of prunes or figs at night. Some patients prefer a little lettuce at night. No other food is used.

Constipation is a common complication in hypertension and is possibly a factor in the cause of the disease. It is generally supposed that a milk diet is constipating. Experience with milk in large quantities shows that this is not the case. Perhaps a more correct statement would be to say that constipation is generally overcome when this treatment is used for four weeks or more. The reason for these results is believed to be due to the better general nutrition, and it is quite reasonable to believe that the function of the glandular and muscular coats of the stomach and intestines is improved by the better nutrition, and better blood supply that results. This is also favored by the regular use of abdominal massage with a five-pound cannon ball. Constipation does occur sometimes and even impactions of the lower bowel unless precautions are taken. This complication is avoided by the use of a daily enema, which is used in most cases. No bad after-effects have been observed from the use of enemas, and they are discontinued at the end of the treatment. During the past year, excellent results have been had by using a pint or more of acidophilus milk a day.

In extreme cases with great edema, the effects are most interesting and quite regularly obtained. The following case, although an extreme one, illustrates results that can be obtained:

CASE 1. Mr. K. S., South Dakota; age 54, August 1, 1920. This patient was advised to return to his home, and his family informed that he would probably live but a short time. He insisted on entering the Sanitarium, however. His heart was dilated and he had massive edema, having strips four inches wide sewed into his trousers so that he could get his legs into them. His blood pressure was 224 systolic, 138 diastolic. Urine showed no albumin. Specific gravity 1.012. He was very short of breath. Large doses of digitalis and jalap had been taken.

All medication was discontinued. The first two days he had only oranges and water, the third and fourth days oranges and two quarts of milk, three quarts on the fifth

day, and for the next nine days four quarts a day with orange juice; the next ten days five quarts, on the twenty-sixth day six quarts, and four and five quarts a day for the next week. His weight on entering was 240 pounds, on the seventh day it was 214, a loss of twenty-six pounds in seven days. The fourteenth day it was 205, twenty-first day 204, thirtieth day 203 pounds. At the end of the fifth week he weighed 205 pounds, at which time he left for home. Two months later he wrote that he was feeling fine and was working and that he had gained ten pounds of solid tissue, bringing his weight to normal, 215 pounds. His blood pressure reached 160 systolic, 110 diastolic, by the middle of the third week. Systolic pressure remained at 160, the diastolic came down to 104. He left against advice but said he would return if he had any trouble. At the time of his discharge, his urine showed no albumen, specific gravity 1.020. There was no edema visible.

CASE 2. Miss C., living in Rochester, was treated for six weeks by this method twelve years ago. Single woman. Age 55 at that time. Systolic blood pressure was 245. She had intense headaches and dizziness and heart involvement; was unable to lie in prone position or to walk. Has taken three short courses of this treatment since then. One year ago her blood pressure was 170. She adopted and has raised a child since first treated and has almost constantly managed a boarding house since first treated.

CASE 3. Another case, my mother. Age 68 at that time, ten years ago, had a systolic blood pressure of 245 with kidney and heart involvement, retinal hemorrhages and was nearly blind. Received this treatment for six weeks. Has enjoyed very good health since until one year ago, while away visiting, she had a stroke, paralyzing the right hand and arm. She has partially recovered the use of the arm, and her general health is quite good. She reads almost constantly and writes a good deal with her left hand. Has taken short periods of the treatment several times since the first time.

CASE 4. Mr. S., of Missouri. Age 54, June 1917. This patient had an extremely high blood pressure, frequently reaching 300 or more, or as high as the instrument registered. He had kidney and heart involvement and was unable to be out of bed. He also suffered greatly from insomnia. There was complete loss of sight in the left eye and very little vision in the right, due to retinal hemorrhage. He had the usual method of treatment for six weeks. Before returning home, he was able to have a tonsillectomy done. Later, during the war, he was engaged on a grain commission at Washington, and in one letter his wife stated that "he was as well as a man could be," but that he was working at his usual high tension. Later he worked at his business of grain operator. He died one year ago after a strenuous business trip in the East.

CASE 5. One other patient had a systolic blood pressure going above 300. He was greatly improved by treatment and lived nearly two years. He reported shortly after returning home that he had driven fifty miles to attend a dinner.

CASE 6. Mrs. L., Kentucky. Age 65, January 1921. This patient complained of constant headaches, and dizziness, loss of strength and great anxiety about her condition.

Urine normal, heart fairly good but at times too fast. Blood pressure, 288 systolic and 110 diastolic. Weight 121. Treatment begun in the usual way, taking four quarts of Guernsey milk on the third day and from four to seven quarts daily after that for seven weeks. During this time she gained twenty-four pounds, when she left. On discharge her blood pressure was 150 systolic, 90 diastolic. From a recent report this patient had retained her weight and was quite well.

CASE 7. Mrs. A., Kentucky. Age 60, March 1922. Weight 112. Systolic pressure 160, diastolic 100. Time of treatment, twenty-six days. This patient gained sixteen pounds in twenty-six days. Hemoglobin rose from 64 to 32. At a recent report she was quite well.

CASE 8. Mrs. S., South Dakota. Age 51, March 1918. This patient had usual symptoms of hypertension, headaches, etc. Albumen present. Systolic blood pressure 226, diastolic 130. This patient took five and six quarts daily for thirty-four days. Systolic pressure on seventh day was 150, diastolic 110. At time of discharge the systolic pressure was 132, diastolic 86. The patient was greatly improved in every way. In March 1922 she returned. She had just lost her favorite son and was emotional. Systolic pressure was 220, diastolic 110. She remained five weeks, taking only three quarts of milk a day, as she had increased in weight and did not want to gain. At the time of her discharge she had lost six pounds in weight and the systolic pressure was reduced from 220 to 150, diastolic from 110 to 96.

On account of space only one heart case will be reported.

Mrs. H., Rochester. Age 66. This patient had marked dilatation with massive edema. Weight 174. And was unable to walk. She had exhausted the usual drugs. Pulse 130. Systolic blood pressure 120. The diet was two oranges and three to four quarts of milk a day. The edema was rapidly reduced but the patient was not weighed again until her discharge at the end of five weeks, when she weighed 153 pounds, a loss of twenty-one pounds. Pulse at the time of discharge was 100 and regular, condition of heart and general condition greatly improved. The following winter she had a very severe attack of facial erysipelas, but recovered and was able to do part of her housework until February of this year, when she had an attack of pneumonia and died.

Two nephritis cases died in the hospital. One had a beginning coma on admission and the other practically an anuria, and died in three days. Autopsy showed practically no kidney substance remaining.

During these years there were a number of interesting cases, having hypotension. The same treatment gives marked results in these cases. Briefly the following reports will show the rapid improvement:

CASE 9. Mrs. R., age 39, weight 89.5 pounds. Systolic pressure 84, diastolic 60. On the fourteenth day the systolic pressure was 110, diastolic 70. Fourth and one-half pounds increase in weight.

CASE 10. Mr. D., Kentucky. Age 33, weight 120. Systolic pressure 84, diastolic 58. At the end of two weeks weight increased ten pounds, systolic pressure 120, diastolic 72. Many other similar illustrations could be given.

The good results in this series can be attributed to the following reasons:

1. Rest—thus avoiding all waste and strain.
2. Abundant or even hypernutrition with a food that has the following advantages: (a) is easily digested; (b) contains all the elements necessary to life and growth; (c) is raw, the chemical and vitamin properties unaltered by heat or by storage; (d) freshness; (e) a food that is rich in phosphates and lime, potash, sodium and chlorine, etc.
3. The large fluid intake which is tolerated and has the advantage of diluting the toxins and washing the tissues.
4. The baths and packs, increasing the elimination by the skin and thus saving the kidneys.
5. The probability that the alkaline reserve is increased as shown by the fact that the urine is frequently alkaline after the patients have been on this diet for a few days.

The advantage of the treatment is that it is intensive. Lasting results can be obtained in a comparatively short time and can be made fairly permanent by repeating the treatment at least yearly and by adhering to the diet prescribed and using one or more quarts of milk daily.

Practically any patient can take milk in large quantities. Of all classes of patients treated, less than 2 per cent could not drink milk in quantity.

At the completion of the period of treatment the patients are given careful instructions regarding hygiene and diet. They have been advised to drink one or more quarts of fresh milk a day. (One patient lived exclusively on milk for more than two years.) They are also advised to eat more of the following foods than they have been accustomed to use: more fruit, especially oranges; more green foods including lettuce, raw cabbage, sauer kraut, and the coarser vegetables that can be eaten raw. They are allowed a small amount of fat meat, fish, etc., two or three times a week, especially advised to select sweetbreads, liver, tripe, etc., avoiding muscle meats. They are advised not to overeat. In addition they are advised to follow suggestions made in the paper, "Factors in Longevity."¹

Dr. Sansum's excellent article, mentioned on the

¹J. E. Crewe, M.D.: Factors in Longevity. Minn. Med., Oct., 1922, p. 609.

first page of this paper, bears out the advisability of the diet mentioned.

DISCUSSION

DR. JOHN H. MOORE: When I first heard of this method of treating cardio-vascular disease by putting the patients to bed and filling them as full of milk as Dr. Crewe says he does, it seemed almost incredible that a human being could hold that much fluid in as short a period of time as one day. I have tried this thing out myself in the last two years, and while I never succeeded in getting patients to take eight or nine quarts a day, I have gotten some of them to five quarts a day and held them there several days.

I am sorry that Dr. Crewe did not mention one or two things which I think are very important in his method of treatment. It sounds perfectly simple to tell a patient to go home and drink milk. You try it and you find it cannot be done. I know of nothing in the practise of medicine that requires greater care than the treatment of cardio-vascular cases such as Dr. Crewe describes. Constant supervision is the thing, if anything, that will insure success. We know that those patients for whom we prescribe rest and who go to bed will frequently improve without anything else being done for them, but I do believe there is something of value along the lines of what Dr. Crewe in another paper calls hypernutrition and hyperelimination. These patients come in and usually complain of headaches and various subjective symptoms, and it is really surprising how in a few days they will become comfortable.

I have found that where I have had failures in this work has been in the cases where I simply told them how much milk to take and told them a few things as to taking care of themselves and sent them home. They need constant supervision. During the first few days under treatment you will find that the systolic blood pressure will drop rather rapidly, the diastolic not dropping as rapidly, and then towards the end of the first week in treatment the systolic blood pressure will rise again, and as treatment is continued it will gradually settle down to a new low level in favorable cases. I have been unable to account for the rise of the systolic blood pressure towards the end of the first week, and I would like to ask Dr. Crewe if he has experienced that rather characteristic rise. I enjoyed his paper very much.

DR. J. E. CREWE: A study of the lives of aboriginal people shows much of interest in their simpler methods of living. We have probably all marvelled at the wonderful physiques of the people we sometimes see in the movies when they show examples of savage and semi-savage people. These folk live on simple food and are very robust and have little disease for the most part.

Charles Darwin during his trip in South America, many years ago, marveled at the Fuegians, whom he saw near the Straits of Magellan. These were very robust people, averaging more than six feet in height, who were able to undergo great hardships. They lived on shellfish and certain fungi which grew there, and their diet was extremely simple. He also spoke of the people in the western part of Argentina, who lived almost exclusively on a meat diet, averaging about five pounds a day apiece. He states that they were a very hardy and robust people. The Eskimo,

before they were contaminated by white people, had little disease and were robust and lived on a diet consisting almost exclusively of meat and fish.

One can find many wonderful things in some of the old books that we no longer read.

For instance, you remember how Stanley, when he went to rescue Emin Pasha, took five or six hundred negroes from the western coast of Africa, traveling along the Congo through swamp and jungle in a tropical climate. These natives carried from forty to eighty pounds apiece, and he had to obtain their subsistence from what he found on the way. These men were well and contented when they had an abundance of simple foods, such as bananas and cassava. The only difficulties they had were when they were unable to obtain any food, at which times they became sick and had ulcers and intestinal trouble, and many died.

There are many interesting things to be found in books of travel and those written by explorers. These observations should teach us that health is dependent to a large degree on food, and that it is not necessary to have large varieties of food but that it must be fairly abundant and simple, and not "tampered" with as our modern civilized food is.

Colonel McCarristan's experiences while resident for nine years in Northern India are of great interest and very important. Many observations of modern men point to the same thing.

Milk offers a convenient method of overcoming some of the deficiencies of our modern diet, but it is quite likely that results can be obtained by other methods such as recommended by Dr. Sansum and others.

The Commercial Taint in Medical Advertising.—The advertisements of firms that sell apparatus, especially for physiotherapeutics and diagnostic uses, show a tendency to stress the idea that the purchaser of such apparatus will increase his income by impressing the layman with the scientific attainments of the individual who uses it. No decent man in the medical profession thinks of adding to his armamentarium for the purpose of financial gain. An advertiser's appeal to buy a piece of apparatus because of the "psychic effect" which it may produce on the patient is repugnant and insulting. Any firm that thinks it is going to obtain the good will of the medical profession by an appeal to the sordid is sadly mistaken (Jour. A. M. A., July 5, 1924, p. 44).

Cellasin.—Cellasin is sold by the Cellasin Company, Buffalo. Cellasin, then marketed by another firm, was reported on by the Council on Pharmacy and Chemistry about fifteen years ago. It was submitted to the Council with the claim that it was a ferment absorbed unchanged into the tissues, that it cured diabetes mellitus and that it cured tuberculosis and established immunity against this disease. The Council's report at that time brought out that the claims were unwarranted and that it contained, not a ferment, but a spore-producing bacterium which splits sucrose largely into lactic acid (Jour. A. M. A., July 5, 1924, p. 58).

THE COSTO-CHONDRAL GRAFT FOR THE REPAIR OF SKULL DEFECTS*

ADOLPH M. HANSON, M.D.
Faribault, Minn.

Skull defects may be classified as: large or small; pulsating or non-pulsating; frontal, parietal, occipital, and defects of the upper vault. Skull defects requiring graft for repair are usually the result of injuries to the skull and operations made necessary thereby.

The indications for skull graft are: (1) defects which pulsate and cause headache, vertigo, nausea and weakness at rest or on exertion; (2) defects that include live areas, causing irritative lesions because of edema resulting from a pinching of the brain tissue, the symptoms depending upon the area involved; (3) cosmetic reasons.

Let us for a moment consider the existing condition in an old cerebral injury with a pulsating defect over a "live area." For the sake of illustration we may consider a defect over the motor area. Below the defect we have a scarred brain with, perhaps, adherent membranes. If no cyst is present, this healed portion of the brain, on stooping or exertion, is forced into the defect with the following result: a certain amount of edema, more or less, being constantly present, any condition, as epilepsy, spasticity, etc., is aggravated. This is not so noticeable in cases with very small or very large defects, but in those where the defect is large enough to permit of a pinching of the brain tissue, the convexity of the brain tissue when forced into a defect of 3 or 4 cm. by 6 cm. is very marked; whereas, in a large defect the convexity is only slight. The more marked the convexity, the tighter is the pinching process, and the resulting injury and edema of the part involved proportionately greater.

In heterografts, where silver, gold, or celluloid, or any other substance is used, the "man-hole" has simply been given a cover. The defect of the internal table and its space above (5 to 8 mm.) still affords an internal hernia into which the brain may be forced with sufficient force to produce a slight insult sufficient to cause or keep up a slight edema. In this manner, a heterograft may only slightly benefit a chronic localized edema, or not at all. The autograft of costo-chondral cartilage, that is

one-half to two-thirds the thickness of the normal rib, restores the normal thickness of the bony covering and prevents all possibility of pinching. With the internal table restored, a chronic localized cerebral edema will gradually subside.

It was the practice of Shutro in Paris, during the great war, to use thin cartilage grafts, because they were pliable and easily handled, but this has fallen into disrepute because such grafts absorb. The speaker uses a graft from one-half to two-thirds the thickness of the chondral rib. Such grafts do not absorb, but become firmly embedded, affording a dense protective layer that restores the internal table.



Fig. 1. Before operation.

The technique of the operation is briefly as follows: The head is painstakingly shaved and prepared by washing with soap and sterile water; sponged with ethyl alcohol and dried by sponging with ether. The site of choice for securing the graft is over the costo-chondral cartilages of the

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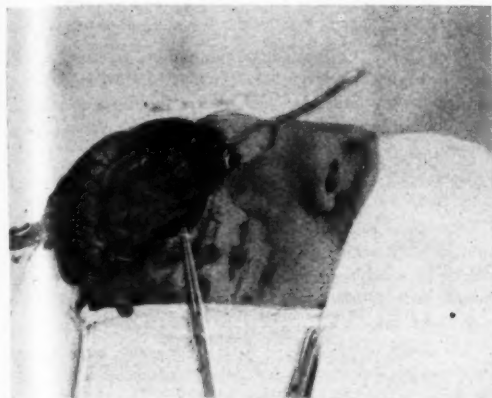


Fig. 2. Skull defect exposed.

fifth, sixth and seventh ribs, either side. This is prepared in the same way. Using a one-half per cent novocain solution to which one thirty-second grain of adrenalin chloride has been added per 60 c.c., a block of scalp about the defect is injected; also, a block of skin, including the deeper structures, at the site selected for securing the graft. The old defect is exposed, employing a tripod incision, exposing well beyond the margins of the defect, when possible, carefully separating the galea from the dura. The dura, adherent to the margins of the defect, is freed by the use of a dural separator. The graft is now secured and trimmed to fit the defect. Taking care that the head wound is dry and all clotted blood removed, the defect is carefully sponged with ethyl alcohol and the graft laid on the dura with the smooth uncut surface inward. The scalp is now closed in layers, using interrupted No. 0 or 00 chromic gut sutures in the



Fig. 3. The cutting of the costo-chondral graft.

galea and interrupted silk sutures in the scalp. A pad of sterile gauze is placed directly over the defect and graft and secured by adhesive strips in such a manner as to keep the graft firmly in place and prevent bulging until it becomes firmly adherent and embedded. This pad is changed and carefully readjusted in three or four days, when the scalp sutures are removed; again one week later; and, again ten days later. At the end of three weeks the graft has usually become firmly embedded and all dressings are removed. In large defects in the parietal or occipital regions, the pad should be kept in place for six weeks.

The following case report with illustrations is submitted:

Case History No. 10621. W. F. O. Age 28 years. Male. Single. White. American.

While driving an automobile on Jefferson Highway near Faribault, Minnesota, on Sept. 20, 1923, drove off the road

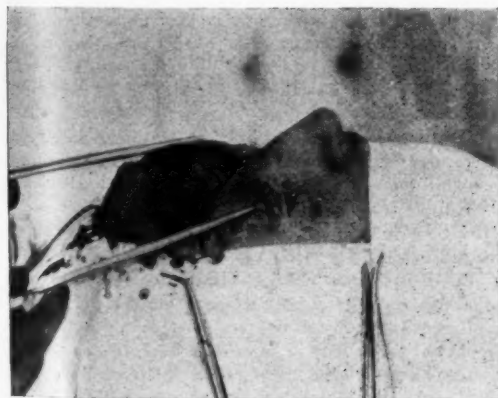


Fig. 4. The costo-chondral graft in place.



Fig. 5. The galea sutured.



Fig. 6. Six weeks post-operative.

striking a culvert and was thrown violently against the handle of the windshield wiper. He was found in the automobile bleeding from the forehead, nose and mouth

by a farmer about 6 A. M. No history of accident obtainable from patient.

Diagnosis: Compound, comminuted fracture of the frontal bone, including the right orbit and most of frontal sinus; intra-cranial hemorrhage and severe concussion; fracture of both maxillary bones with displacement and separation from normal articulations.

Treatment: Lumbar puncture, intra-spinal pressure 18 mm. mercury, cerebro-spinal fluid bloody.

Operation, September 20, 1923, at 7:30 A. M. Trepanation of skull with removal of comminuted bone fragments, pieces of windshield and vulcanized rubber, including the mesial half of the right orbit. Sub-temporal decompression right side.

The teeth of the upper and lower jaws were brought into correct articulation and held in place by a four-tailed bandage by Dr. J. A. Hanson, D.D.S. This was carefully readjusted and the articulation inspected twice daily.

The patient's mentality began to clear up on the fourth day post-operative and the patient had an uneventful recovery, leaving on the twentieth day post-operative.

On January 16, 1924, the skull defect was exposed for the purpose of doing a skull-graft, but the remaining portion of the frontal sinus was found to contain fluid, resembling a milky serum. The external wall of the remaining portion of the sinus was removed by rongeurs, the lining of the sinus on the posterior wall removed by a curette and the posterior wall swabbed with phenol. The skin was closed with drainage. The patient was allowed to leave the hospital on the fifth day post-operative.

On February 5, 1924, the skull defect was again exposed and portions of the costo-chondral cartilages of the seventh, sixth and fifth ribs removed for the graft. The sutures were removed on the third day post-operative and the patient permitted to leave the hospital on the eleventh day.

These operations were performed under local anesthesia.

Illustrations of this case are shown as they most clearly demonstrate the technique of this operation.

POISONOUS COSMETICS

Numerous cases of poisoning due to the use of cosmetics containing harmful ingredients are reported in a recent article by Cole in the *Journal of the American Medical Association*.*

Lead is apparently frequently used in hair dyes, face enamels and cheap face powders and their use has often resulted in severe lead poisoning, in one case with fatal results. Mercury is another dangerous metal sometimes found in hair dyes, but more often in face cream and skin bleaches. The concentration of the mercury compound is frequently far greater than is commonly employed for disinfecting purposes. Bismuth is sometimes used in the preparation of so-called rice powders, the use of which gives rise to clamminess of the skin, nausea and spasms. Arsenic has occasionally been found in hair dye but is presumably not a common ingredient. Wood alcohol was found by one analyst in 33 per cent of the toilet waters exam-

ined. Silver compounds and pyrogalllic acid are frequently used in the manufacture of hair dye and may endanger the patient in the same way as lead or mercury. The metals calcium and barium are largely employed in the manufacture of depilatories and are apt to cause skin eruptions. The same may be said of many of the deodorants used by women.

According to the writer the most dangerous drug of all those used in cosmetics is paraphenylenediamine, which, because of its irritating character, should not be allowed in hair dyes. It causes an intense skin eruption which is persistent, often lasting for weeks. Several deaths are reported as being due to the use of this chemical.

The dangers from the use of cosmetics are of two types—first the mechanical obstruction of the pores of the skin and second, the destructive action of certain harmful ingredients; the amount of harm done depending on the particular chemical used, the duration of its application, the area to which it is applied, and the susceptibility of the person using it.

*June 14, 1924, page 1909.

MINNESOTA MEDICINE

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APOLIS SURGICAL SOCIETY

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EDITING AND PUBLISHING COMMITTEE

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EDITORIAL OFFICE

CARL B. DRAKE, M.D., Editor
402 Guardian Life Bldg., Saint Paul

BUSINESS OFFICE

J. R. BRUCE, Business Manager
402 Guardian Life Bldg., Saint Paul
Telephone: Cedar 1683
201 Commercial Bldg., Minneapolis
Telephone: Atlantic 2716

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Vol. VII SEPTEMBER, 1924 No. 9

EDITORIAL

Medical Mutations

With the recent development of the scientific side of medicine the undergraduate medical course has been lengthened until now a minimum of seven years faces the medical prospect as he leaves high school. And if the academic degree, the desirability of which for the professional man has been and always will be a matter of taste, is first obtained, nine years are necessary before even a license to practice medicine is obtained. It is no wonder that postgraduate courses along special lines have been proportionately short. As medical science develops still more is the medical course to be further lengthened in an endeavor to cram all medical knowledge into the undergraduate's head? Even today it is impossible for the graduate to keep thoroughly abreast of progress in a specialty to say nothing of the whole field of medicine. It is apparent that we are approaching the time, if we have not already reached it, when training in the specialties will have to be more emphasized and the time period required for the M.D. degree kept stationary or even shortened.

This whole subject was very comprehensively presented by Dr. Pusey, president-elect of the American Medical Association, in his recent address* to the House of Delegates. Dr. Pusey suggests that the present seven year requirement be cut to four and a half years, these to consist of three years of medical training and a year and a half at least of internship.

This is a radical proposal and would mean the elimination of much from the present undergraduate curriculum. Undergraduate work includes much that could very profitably be transferred to postgraduate courses and some work that might to advantage be left out entirely. Practice in the art of medicine—that is, the actual performance of things medical—should not be abbreviated. If shortening the undergraduate course will result in a more poorly qualified graduate, such a step should not be taken. No change should be made which will undo the remarkable improvement in medical education brought about since 1900 largely through the work of the Council on Medical Education and Hospitals of the American Medical Association.

Shortening the undergraduate medical course to the extent suggested by Dr. Pusey would attract more young men to the medical profession. Is this necessary or advisable? There is no dearth of applicants for admission to medical schools as far as at least as local conditions are concerned. A shorter course, would, however, be of advantage to the poor boy.

There is some room for argument as to whether there is an actual scarcity of physicians today. The various cults, however—chiropractic in particular—are turning out a horde of half educated so-called doctors and a very considerable proportion of the population is patronizing them. In this connection we wish to recall the result of the investigation made by Dean Lyon of the University of Minnesota Medical School, which appeared as an editorial in the February, 1923, number of MINNESOTA MEDICINE. His conclusion was that "in not a single place do we find an osteopath or chiropractor serving the people with no regular physician available" and he makes that point that irregulars "are not taking the place of the doctor but are additional to him." Whether turning out more physicians would remedy the situation and supply a demand now met by the irregulars is open to question.

It is interesting in this connection to consider the

*Jour. Am. Med. Assn., June 14, 1924, vol. 82, p. 1960.

subject of medical education in England. There are some features of their system of granting degrees which it might be well to imitate although there are certainly others which it would be well to avoid.

The lowest degree entitling a physician to practice in Great Britain is the L.S.A. (Licentiate of the Society of Apothecaries). The next degree in order is the L.R.C.P., M.R.C.S. (Licentiate of the Royal College of Physicians and Member of the Royal College of Surgeons). This is known as the "conjoined degree." Examinations are held each three months and the subjects are divided into three groups—medicine, surgery, and gynecology and obstetrics.

For the doctor who elects to devote his attention along medical lines, examination is taken for the M.R.C.P. (Member of the Royal College of Physicians). This is the highest degree obtainable by examination and indicates special attainment. The degree of F.R.C.P. (Fellow of the Royal College of Physicians) is purely honorary and is granted for outstanding achievement in the medical field.

If surgery is elected, examination for the degree of F.R.C.S. (Fellow of the Royal College of Surgeons) may be taken. This is a most rigid examination covering anatomy, physiology and surgery and the degree means something.

The degrees of M.B. (Bachelor of Medicine) and M.D. (Doctor of Medicine) are granted in England and rank higher than the conjoined degree but frequently are not possessed by those having the degree of F.R.C.S.

In England the time element spent in study does not figure as prominently as in our country. Examination is all-important. The undesirable feature of cramming is therefore more in evidence.

Our titles of F.A.C.S. and F.A.C.P. are direct imitations of the British degrees. The rapidity with which our titles have been granted in an apparent effort to catch up with our English cousins has distinctly detracted from the standing of the titles and yet the move is generally admitted to be in the right direction.

The desirability of establishing degrees for postgraduate work which will signify special attainments is becoming more and more apparent. Such degrees would spur the practitioner on to perfect himself along certain lines and would draw the line of demarcation more clearly between specialist and general practitioner.

The proposition of enacting fundamental changes in medical education in this country is a vital question and is eliciting considerable discussion as a result of Dr. Pusey's address. The problem is, of course, one for medical educators to solve.

Recent Distribution of Physicians in Minnesota

Attention is frequently called to that fact that physicians are congregating in the cities and that the rural districts are consequently suffering from lack of medical attention.

Figures are not at hand showing the distribution of physicians in cities and rural communities in Minnesota. Since the first of the year, however, the medical graduates of the University of Minnesota for the past ten years have been located by Dean Lyon's office. The following table has been drawn up to show the distribution in towns or rural districts of the recent graduates irrespective of whether they located in Minnesota or other states. Comparison is made with the distribution of the population in Minnesota. Possibly the comparison should have been limited to the physicians locating in Minnesota.

	No. of	Percentage	Percentage
Size of city	graduates	of graduates	of total population
Less than 5,000...	164	31	61
5,000 to 50,000...	92	17.5	9
50,000 or over...	239	45.5	30

Population figures have been obtained from the 1920 census and fractions have been omitted. Six per cent of the recent graduates could not be located, had died, etc. A number of graduates are taking postgraduate work in Rochester or are associated with the Mayo Clinic and this accounts for some of the relative high percentage of recent graduates (17.5) in cities of 5,000 to 50,000 population. It is interesting to speculate what percentage of the graduates who are now at Rochester would have sought country locations and thus tended to relieve the dearth of rural physicians, had not Minnesota been possessed of the Rochester clinic.

Specialism is bound to be limited to localities where there are at least several doctors. Patients will ever be referred from the rural districts to the larger centers of population for special medical attention. Rural communities are therefore not entitled to the same ratio of doctors as the towns and cities.

Further, doctors in the towns of 5,000 population

and over care for a certain portion of the rural population in the immediate neighborhood.

It may be reasonably concluded from the above figures that as far at least as Minnesota is concerned there is a tendency for recent graduates to avoid rural locations.

Smallpox

There are few infectious diseases that can be so largely prevented as smallpox. Yet propaganda will probably always have to be maintained in order to keep the population thoroughly vaccinated. While a small percentage of people in this country are opposed to the idea of vaccination against smallpox because of ignorance, prejudice or simply anti turn of mind, most of the lack of immunization is due to neglect.

In a circular recently compiled by Dr. McDaniel, of the Division of Preventable Diseases of the State Board of Health, and sent to the various health officers throughout the state, the smallpox situation in Minnesota is clearly set forth. It seems that a laborer from Canada introduced a malignant strain of the disease into Duluth in January of this year. The infection spread through St. Louis, Carlton, Aitkin and Lake counties and gained a foothold in Wisconsin. Up to August first there had been 193 cases with forty deaths in Minnesota.

Certain points about smallpox should be emphasized.

1. Smallpox in rare instances can be contracted a second time.
2. Smallpox may be contracted in spite of a successful vaccination. It is even possible for smallpox to develop where a successful vaccination has been obtained within seven years although this is rare.
3. The older the vaccination scar the less immunity is present.
4. Smallpox developing in successfully vaccinated individuals is milder than in the unvaccinated. A virulent strain may not lose its malignancy because of mild manifestations in a vaccinated individual.
5. Children as a rule react less severely to vaccination than adults.

Reports of numerous outbreaks of smallpox throughout the country merely emphasize the importance of continually reminding our clientele of the necessity of keeping immune against smallpox.

MISCELLANEOUS

STATE FAIR EXHIBIT

The State Medical Association and the University have for the first time been invited to put on a health exhibit conjointly at the State Fair this month. The joint action is a particularly happy one as the University has the best facilities conceivable for getting up a worthwhile exhibit of this sort, and the collaboration of the physicians of the state assures the proper sort of display. This sort of activity is no new departure for the University. At the Minneapolis Health Exhibit, held in conjunction with the last Minneapolis Clinic Week, the University under the supervision of Dr. W. A. O'Brien did itself proud in the character of its display. The fact that Dr. O'Brien has charge of the State Fair Exhibit assures its success and was a factor in obtaining the appropriation from our Association to cover incidental expenses.

The following excerpt from a letter to Dr. F. J. Savage, chairman of our Public Health Committee, indicates the educational nature of the exhibit:

July 31, 1924.

Dear Dr. Savage:

The final arrangements for our space at the State Fair have been completed. We have been given 60 feet in the lower section on the right side. There will be a large sign placed over the exhibit with the lettering, "University of Minnesota Medical School and Minnesota State Medical Association."

The booths will be divided as follows: One large central booth 16x10 feet. In the front of this exhibit there will be a 10-foot table with demonstration of the circulation of the blood through the web of a frog's foot; a mechanical moving thorax; a turtle's heart beating outside the body in a bell-jar; a small hand model of the action of the diaphragm in breathing, containing a pair of rabbit's lungs in fresh condition. The idea of this exhibit is to convey an impression of the scientific nature of the methods used by physicians in examining patients. In the rear of the booth there will be two large modern manometer blood pressure machines. In the center of the booth at the rear there will be two vital capacity spirometers. Signs calling attention to the value of periodic physical examinations will be placed.

The other booths will be 11x10 feet. In one we will use a display of panels calling attention to the things every layman should know about the early recognition of cancer, as, for example, "a lump in the breast is the chief early sign of cancer," etc. In the front of this booth actual specimens of cancer of the skin, breast, uterus, stomach and rectum will be on display. We will distribute literature provided by the American Society for the Control of Cancer.

The third booth will be used for tuberculosis. In this exhibit we intend to put over the idea that the earlier tuberculosis is detected the greater the chances for arrest. As a background of this exhibit we will use four x-ray shadow boxes showing normal lung and incipient, moderately advanced and advanced tuberculous lungs. Pathologic specimens corresponding with these stages will be placed in front of the shadow boxes on a lower shelf. On either side will be two panels, one showing a chart compiled by the Prudential Life Insurance Company in regard to the probability of cure and, on the other side, placards

advising people to consult their physicians early in regard to any chest trouble.

The fourth booth will be devoted to the things every mother can do for her children at home, that is, assure proper growth and prevent goiter. In the front part of the booth there will be an exhibit of white rats, properly labeled, showing the effects of faulty feeding. In the rear will be a display calling attention to the fact that the water of Minnesota is deficient in iodine and that such deficiency is the cause of goiter. In the center will be a display of the means of prevention of goiter. On the rear wall will be two maps showing the distribution of iodine-deficient water and the percentage of goiter in drafted men.

The fifth booth will be devoted to diphtheria and smallpox. Either a display of methods of growing diphtheria bacilli will be made or the organisms will be shown under the microscope. The propaganda we wish to put over in this section is that every person should be immunized against diphtheria and smallpox.

We are arranging to have a full quota of advanced medical students in charge of the booths at all hours. We trust that these plans will meet with your approval.

Sincerely yours,

WM. A. O'BRIEN.

RESOLUTION ADOPTED BY THE OLMDSTED COUNTY MEDICAL SOCIETY, JULY 1924

WHEREAS, vaccination against smallpox and typhoid fever has been attacked by various pseudo-scientific societies and in some instances by the public press as being ineffective in the prevention of these diseases and dangerous to the health of those vaccinated, and

WHEREAS, the experience of the medical department of the United States Army has proved conclusively that, in the case of typhoid fever, vaccination is a safe and dependable measure, responsible for the saving of many thousands of lives during the world war, as is shown by a comparison of the typhoid rate during the Civil War before anti-typhoid vaccination was known, and the rate during the world war, indicating that, had the former rate prevailed, over sixty thousand Americans would have died of the disease instead of the actual number, which was barely two hundred, and

WHEREAS, general neglect of vaccination against smallpox is leading to a greatly increased prevalence, and in some places to its appearance in epidemic and in virulent form, and

WHEREAS, there is positive proof as shown by the records of state and municipal health departments that vaccination with re-vaccination will prevent smallpox, and

WHEREAS, vaccination properly performed and cared for carries no appreciable risk to the health of those vaccinated, as proved by the extensive experience of army surgeons who have treated hundreds of thousands of persons without a death, therefore

BE IT RESOLVED that the members of the Olmsted County Medical Society hereby publicly endorse vaccination as a most effective means for the protection of individual and community health and further that they go on record to the effect that vaccination is a harmless procedure and conducive to public welfare.

OBITUARY

DR. WARREN L. BEEBE

After an illness of seven months, Dr. Warren L. Beebe, well known medical practitioner of St. Cloud, died Wednesday afternoon, August 13, at the Northern Pacific hospital at St. Paul. Dr. Beebe was 76 years of age.

Dr. Beebe was born at Belpre, Washington county, Ohio, March 16, 1848, son of Dr. William and Elizabeth (Rathbone) Beebe. He attended the common schools of his native town and in 1870 was graduated from Marietta college in Marietta, O. From the days of his earlier boyhood it was his determination to follow in the footsteps of his distinguished father. He graduated from the Ohio Medical college at Cincinnati, O., in 1873, with the degree of M.D., a mark of real merit in those days when so many physicians received their training in the office of some general practitioner. Desiring still further to master the profession, Dr. Beebe entered the Bellevue Hospital Medical college, from which institution he was graduated in Centennial year. With this equipment he practiced in his native village under the direction of his father. He also practiced in Barlow in the same state. In 1878 Dr. Beebe came to Minnesota and located in St. Cloud, which city has since been his home.

Dr. Beebe was devoted to his profession, kept abreast of the latest developments in science, chemistry and medicine, and had a reputation as high authority in such matters. His excellent mental powers, his long experience, and his rigid training as well as his upright character and sympathetic nature are among the factors which contributed to his extraordinary success in the treatment of disease and his skill in surgery. Throughout his residence in St. Cloud he was a potent factor in the professional and civic life of the city. He belonged to the Stearns-Benton Medical Society, of which he was one of the founders, to the Minnesota State Medical Association, and to the American Medical Association. In 1890-91 he was president of the state association, and by all of these bodies he has been repeatedly placed in position of honor. He also affiliated with the Masonic body, the Elks and the Knights of Pythias. He was social in his tastes and had a large circle of friends throughout the state. For many years he was local surgeon for the Northern Pacific and Great Northern railways. Politically he several times served the city of St. Cloud as health officer and for a number of years he was United States pension examiner.

Dr. Beebe was married December 28, 1876, to Miss Maria Harte, at Marietta, O., who survives.

DR. H. M. LUFKIN

Dr. H. M. Lufkin, a practicing physician in St. Paul for thirty-seven years, died Sunday morning, July 6, at St. Luke's hospital, following an illness of six months.

Dr. Lufkin was born in Shelbyville, Illinois, in 1860. He was a graduate of the University of Michigan, Illinois State Normal School, Hahnemann Medical College, Philadelphia, and New York City College. Dr. Lufkin was also a student at the New York Polyclinic and in Vienna for two years.

Dr. Lufkin was formerly connected with the staff of the

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medical school of the University of Minnesota, president of the Minnesota State Homeopathic Society, a member of the staff of St. Luke's and of St. Joseph's hospitals, St. Paul. At the time of his death he was a member of the staff of the City and County hospital. He was an active member of the Ramsey County and Minnesota State Medical Associations.

Surviving Dr. Lufkin are his widow, two daughters, Bernadine and Anne Virginia; three sons, Hamilton, Nathaniel and Charles Dexter, all of St. Paul; two brothers, Frank N., and Charles D., of Hawaii; a brother and sister, Dudley C., and Charlotte O., of Normal, Illinois.

DR. WALTER COURTNEY

Walter Courtney was born on the east shore of Lake Huron sixty-six years ago. He was of hardy Scotch ancestry and was one of a large family of children. His early training was received in the nearby country schools and in the Canadian forest that bordered the home farm. He was proud of his prowess with an ax. The amount of cordwood that he "got out" during the winter that preceded his matriculation in medical school was one of the exploits of his life.

He was a member of the class of '83 that graduated from the University of Michigan; a classmate of W. J. Mayo and Franklin Mall. He engaged in general practice for a short time, but was made Chief Surgeon of the Northern Pacific Railway in charge of the hospital that was maintained at Brainerd. This institution was one of the first to be maintained exclusively for the care of industrial employees, and was Doctor Courtney's life work.

He was elected President of the Minnesota State Medical Society and served in that capacity for one year. He was given the honorary degree of Master of Arts by his Alma Mater in 1908.

He lived his professional life as a country surgeon, and in that capacity was called upon to treat a great variety of ailments and to meet all emergencies alone. He did his work honestly and well. He was, even after he retired from active practice, greatly interested in medical matters. He was a firm believer in strict medical ethics and the highest professional ideals.

His death, which occurred June 23rd, 1924, has taken from the profession an honored member and from many of us a good friend.

A. W. IDE, M.D.

DR. C. L. GOTHAM

Dr. C. L. Gotham, for several years a member of the staff of the St. Paul Hospital, died Monday, April 28, at his home in St. Paul, following a short illness.

Dr. Gotham was born in 1866 at Weyauwega, Wisconsin. He attended the state normal school at Oshkosh, graduating in 1898. He received his degree as doctor of medicine from Rush Medical College in 1911, following which he served a year's internship at the Swedish Hospital in Minneapolis. In 1916 Dr. Gotham took up his practice in St. Paul, where he continued in practice until the time of his death.

Dr. Gotham is survived by his wife, Della Faulkner Gotham, and daughter, Stella Mae.

REPORTS AND ANNOUNCEMENTS OF SOCIETIES

MINNESOTA STATE MEDICAL ASSOCIATION

The annual meeting of the Minnesota State Medical Association will take place at St. Cloud, Wednesday, Thursday and Friday, October 8, 9 and 10, 1924.

The local committee on arrangements, of which Dr. C. B. Lewis is chairman, is completing arrangements for the entertainment of members of the association at the meeting. Physicians are particularly urged to bring their ladies as entertainment is to be provided. This year the banquet is to be omitted and Thursday evening is to be purely a social affair.

The Council will meet at 10 A. M. and the House of Delegates at 2 P. M., Wednesday, October 8th.

Following are the local committees:

Committee on Exhibits—H. W. Goehrs, Chairman, I. E. Bowling, H. F. Clark.

Committee on General Entertainment—Wm. Friesleben, Chairman, P. E. Stangl, T. N. Fleming.

Committee on Hotel Accommodations—J. H. Beaty, Chairman, J. C. Boehm.

Committee on Entertainment of Ladies—J. P. McDowell, Chairman, C. A. Rathburn.

Committee on Lantern Slides—M. J. Kern, Chairman, C. F. Brigham.

Committee on Reception of Members—W. L. Beebe, Chairman, A. D. Whiting.

Committee on Telephone Service—F. H. Stangl, Chairman, Julius Adams.

Committee on Meeting Places—C. S. Sutton, Chairman, J. S. Dunn.

Sign Committee—H. McGibbin, Chairman, L. P. Adams.

Golf Committee—J. J. Gelz, Chairman.

Officers of the Association are:

President—Archibald MacLaren, M.D., St. Paul.

First Vice President—E. T. Sanderson, M.D., Minneota.

Second Vice President—F. J. Hirschboeck, M.D., Duluth.

Third Vice President—C. W. Bray, M.D., Biwabik.

Secretary—Carl B. Drake, M.D., St. Paul.

Treasurer—F. L. Beckley, M.D., St. Paul.

PRELIMINARY SCIENTIFIC PROGRAM THURSDAY MORNING—OCTOBER 9TH MEDICAL SECTION

1. DIFFERENTIAL DIAGNOSIS OF PULMONARY DISEASE—
M. George Milan, M.D., Warren.
2. ARTIFICIAL PNEUMOTHORAX IN ACUTE LUNG ABSCESS—
Everett K. Geer, M.D., St. Paul.
3. LIVER FUNCTIONAL STUDIES IN CLINICAL JAUNDICE—Carl
Hartley Greene, M.D., Rochester.
4. DIABETES IN CHILDREN—
F. W. Schlutz, M.D., Minneapolis.
5. PRACTICAL ELECTROCARDIOGRAPHY—
Harold E. Richardson, M.D., St. Paul.
6. THE ELECTROCARDIOGRAM IN THE MANAGEMENT OF
HEART DISEASE—E. T. F. Richards, M.D., St. Paul.
7. AMEBIASIS—T. B. Tuttle, M.D., Veterans' Bureau.

SURGICAL SECTION

1. THE TREATMENT OF SEVERE INJURIES OF THE SCALP—
Orville N. Meland, M.D., Warren.
2. OBSTRUCTIVE JAUNDICE AND STUDIES IN LIVER FUNCTION—H. Waltman Walters, M.D., Rochester.
3. FOREIGN PROTEINS AS THERAPEUTIC AGENTS IN THE TREATMENT OF ACUTE OCULAR INFLAMMATION—
John F. Fulton, M.D., St. Paul.
4. PREOPERATIVE TREATMENT OF THE PROSTATIC—
Gilbert J. Thomas, M.D., Minneapolis.
5. ACUTE OSTEOMYELITIS IN CHILDREN—
Carl C. Chatterton, M.D., St. Paul.

THURSDAY AFTERNOON—OCTOBER 9TH

GENERAL SESSION

CANCER SYMPOSIUM

1. CARCINOMATA AS SHOWN BY PAPER MODELS RECONSTRUCTED FROM SERIAL SECTION—
Margaret Warwick, M.D., St. Paul.
2. SOME UNUSUAL PATHOLOGIC FEATURES CONCERNING CANCER—Harold Robertson, M.D., Rochester.
3. THE DESTRUCTIVE AND CONSTRUCTIVE SURGERY OF MALIGNANCY—Harry P. Ritchie, M.D., St. Paul.
4. THE RELATIVE VALUE OF SURGERY AND RADIOTHERAPY—
W. J. Mayo, M.D., Rochester.
5. WHAT THE LAITY SHOULD KNOW ABOUT CANCER—
William A. O'Brien, M.D., Minneapolis.

FRIDAY MORNING—OCTOBER 10TH

MEDICAL SECTION

1. HEMORRHAGIC PURPURA—H. Z. Giffin, M.D., Rochester.
2. SOME OBSERVATIONS CONCERNING TIC DOULOUREUX AFTER SIXTEEN YEARS' EXPERIENCE—
Charles R. Ball, M.D., St. Paul.
3. NEWER IDEAS ON THE ROLE OF INFECTIONS IN NERVOUS DISEASE—W. H. Hengstler, M.D., St. Paul.
4. DIATHERMY IN VASCULAR CIRCULATORY DISTURBANCES AND ARTHRITIS—A. E. Flagstad, M.D., St. Paul.
5. CUTANEOUS PICTURE OF LATE SYPHILIS—
Paul A. O'Leary, M.D., Rochester.
6. DISEASES OF THE PANCREAS: DISCUSSION OF THE IMPORTANT SYMPTOMS AND FINDINGS WITH REPORT OF CASES—Moses Barton, M.D., Minneapolis.

SURGICAL SECTION

1. ACCIDENTS IN SINGLE INGUINAL HERNIA—
E. C. Robitshek, M.D., Minneapolis.
2. THE SILENT ANTRUM—
W. L. Burnap, M.D., Fergus Falls.
3. ARTHROPLASTIES—M. S. Henderson, M.D., Rochester.
4. FRACTURES OF THE SPINE—
Emil F. Geist, M.D., Minneapolis.
5. RELATIVE MERITS OF THE DIFFERENT SURGICAL PROCEDURES FOR DUODENAL ULCER—
Donald C. Balfour, M.D., Rochester.
6. TRACING INFECTIONS IN A SURGICAL SERVICE—
Arthur N. Collins, M.D., and Dr. Ritz, Duluth.

FRIDAY AFTERNOON—OCTOBER 10TH

GENERAL SESSION

1. INSTALLATION OF OFFICERS
2. EXPERIMENTAL WORK WITH THE TESTIS—Carl R. Moore, M.D., Chicago
3. CHILD GUIDANCE—
Lawson G. Lowery, M.D., Minneapolis.
4. PREVENTION OF GOITER—O. W. Rowe, M.D., Duluth.
5. DIFFERENTIAL DIAGNOSIS OF PRE-ECLAMPTIC TOXEMIAS AND NEPHRITIC TOXEMIAS OF PREGNANCY—
Albert G. Schulze, M.D., St. Paul.
6. PERIODIC PHYSICAL EXAMINATIONS—
H. W. Cook, M.D., Minneapolis.
7. HEALTH MOVIE

TRI-STATE DISTRICT MEDICAL ASSOCIATION

The annual meeting of the Tri-State District Medical Association, which this year is known as the Inter-State Post-graduate Assembly of America, will take place at Milwaukee, October 27 to 31, inclusive.

The preliminary program appeared in the August issue of MINNESOTA MEDICINE and space does not permit a repetition of the program. The program, which begins daily at 7 A. M. and continues well into the night, includes the names of eminent physicians and surgeons from all over the United States and Canada. Mention a prominent member of the profession and his name is very likely to appear on the program. This association has been growing stupendously because of the remarkable programs arranged. Only the larger cities can afford accommodations for the literally thousands of physicians who attend.

The following is a partial list of distinguished foreign guests who will be present and take part on the program: Professor Theodore Tuffier, Professor of Surgery, Faculty of Medicine, Paris, France.

Mr. A. J. Walton, London, England.

Dr. John Hunter, University of Sydney, Sydney, Australia.

Dr. N. D. Royle, Craignish, Sydney, Australia.

R. Hamilton Russell, Esq., F.R.C.S., Melbourne, Australia.

Dr. Carrick Hey Robertson, F.R.C.S., Auckland, New Zealand.

Dr. Ralph Worrall, Sydney, Australia.

Dr. H. B. Devine, Melbourne, Australia.

Dr. J. S. Elliott, Wellington, New Zealand.

The banquet will terminate the session and will be addressed by the following distinguished speakers:

Monsieur J. Jusserand, French Ambassador to United States, Washington, D. C.

Sir Arthur William Currie, Vice Chancellor of McGill University, Faculty of Medicine, Montreal, Canada.

Dr. Nicholas Murray Butler, President of Columbia University, New York, N. Y.

Professor Theodore Tuffier, Professor of Surgery, Faculty of Medicine, Paris, France.

Rear Admiral Edward R. Stitt, Surgeon-General of United States Navy, Washington, D. C.

Major General Merritte W. Ireland, Surgeon-General of United States Army, Washington, D. C.

LYMANHURST AND PARKVIEW STAFF MEETING

Owing to the necessity of postponing the regular monthly meeting for August of the Lymanhurst and Parkview staff members, the program announced for the August meeting will be given at the regular meeting to be held at the Lymanhurst School, 1800 Chicago Avenue, Minneapolis, Tuesday evening, September 23, at 7 o'clock.

The following program will be given:

"Review of Chemistry of Tuberculosis," Dr. W. P. Larson.

"Review of Calmet's Recent Work in Tuberculosis," Dr. W. P. Larson.

"Recent Developments in Bacteriology and Serology in Tuberculosis," Dr. Montank.

"The Pathology of Tuberculosis," Dr. Kano Ikeda.

All persons interested in tuberculosis are invited to attend these meetings and participate in the discussions.

NORTHERN MINNESOTA MEDICAL ASSOCIATION

The annual meeting of the Northern Minnesota Medical Association held this year in Duluth, August 4 and 5, was a great success from start to finish. The clinics held each morning were short and snappy and a military precision characterized their management. This prevented any dragging, or napping on the part of the audience. None of the clinics were operative but illustrative cases were presented.

The lunches, one at St. Mary's Hospital given by the hospital, and the other at the Kitchi Gammi Club, tendered by the local profession, were greatly enjoyed. The evening society dinner was addressed by the retiring president, Dr. W. L. Burnap, of Fergus Falls, and Dr. H. Gideon Wells, of Chicago, gave a most interesting address on cancer in its relation to heredity. Those who have heard him speak came away convinced by his experiments and conclusions.

The officers of the association are to be congratulated on the fine program.

OF GENERAL INTEREST

Dr. James B. Vail has disposed of his practice at New York Mills and is now located at Henning.

Dr. A. L. Kusske, formerly of Minneapolis, has moved to New Ulm for the practice of his profession.

Dr. and Mrs. Earl Jamieson, Walnut Grove, returned recently from a motor trip through Yellowstone Park.

Dr. J. A. Cosgriff recently moved from Lamberton to Mankato, where he is to be associated with the Mankato Clinic.

Dr. Milton J. Geyman, formerly of Browerville, will take up a fellowship in Roentgenology at the University of Minnesota this fall.

Dr. Gaius C. Harmon has announced the opening of his office at 2267 Como Avenue West, St. Paul, for the practice of his profession.

Dr. and Mrs. Edward C. Gager, of St. Paul, sailed August 15 from Montreal on the Montclare for Europe, where they will spend a year.

Dr. Wm. A. Meierding, Springfield, with Mrs. Meierding and their two sons, spent the latter part of July touring northern Minnesota.

Dr. C. C. Walker has moved from Raymond to Lamberton, where he was formerly located before taking up his practice at Raymond.

Dr. F. H. K. Schaaf, of Minneapolis, is spending two months in Berlin and Koenigsberg. He expects to return some time in October.

Dr. S. N. Mogilner and family, St. Paul, left July 10th, for a year's stay in Vienna, where Dr. Mogilner plans to take a course in postgraduate study.

Dr. L. H. Fowler, who has been associated with the Mayo Clinic, Rochester, for the past few years, is now located in the Andrus Building, Minneapolis, for the practice of his profession.

Dr. and Mrs. J. S. Shrader, of Springfield, have just returned from a three weeks' tour of the western states, including a trip through Yellowstone and Glacier National Parks.

Dr. Karl C. Wold became associated August 1 with Drs. Larsen, Binger and Wheeler, 1027 Lowry Bldg., St. Paul. Dr. Wold limits his practice to diseases of the eye, ear, nose and throat.

Dr. E. W. Fahey, St. Paul, was elected supreme physician of the Knights of Columbus at the forty-second annual convention held in New York City recently. Dr. Fahey received the election by a plurality of eighty-one votes over his nearest opponent.

At the recent annual meeting of the House of Delegates of the American Medical Association, it was decided to apportion one delegate for each 950 members or fraction thereof. On this basis our State Association is entitled to three delegates at the 1925 meeting.

Dr. and Mrs. Einer W. Johnson, of Bemidji, with their two children, will sail September 4 from Quebec on the Montclair for Europe, where they will spend a year. Dr. Johnson plans to engage in the further study of medicine in Edinburgh, London, Vienna and Copenhagen.

Announcement has been made of the engagement of Miss Dorothy Trapp, daughter of Mr. and Mrs. T. J. Trapp, of New Westminster, British Columbia, to Dr. Roger S. Countryman, of St. Paul. The wedding will take place at the home of the bride's parents, Wednesday, September 3.

Notice has been received of the death of Dr. Timothy Geraghty, noted surgeon and authority on urology, which occurred Sunday, August 17, at the Johns Hopkins hospital at Baltimore. Dr. Geraghty was but forty-eight years old. In collaboration with Dr. Rountree, of Rochester, he originated a method for determining functions of the kidneys which now is used throughout the world. For the past ten years, Dr. Geraghty was associate professor of urology in the James Buchanan Brady Urological Institute at Johns Hopkins hospital.

A meeting of the State Board of Health was held at the Capitol in St. Paul August 19th, to which were invited many institution executives for the discussion of the advisability of adopting new regulations for the control of infection both to and from hospitals and similar institutions. As a result of a questionnaire sent out recently by the Board of Health, it became evident that many hospitals have had difficulties in the control of infectious disease among patients, nurses and employees.

It was brought out that there is no state law requiring a hospital to maintain an isolation wing or room. Minneapolis has such an ordinance. Also there is no state law compelling vaccination of school children unless an epidemic exists. The advisability of a law requiring the vaccination of employees in institutions caring for the sick was discussed.

As a result of the meeting Dr. Scofield, president of the State Board of Health, has appointed a committee to draw up regulations to be submitted to the Board of Health and Board of Control for adoption.

The Chicago Eye, Ear, Nose and Throat Postgraduate School announces the following courses:

1. A three months' graded course beginning October 1, January 1, April 1 and July 1, to qualified physicians.
2. A twelve months' graded course beginning January 1, 1925, and every January first thereafter. A three months' course must be taken before entering a twelve months' course.
3. A nine months' course as clinical assistant with salary of \$50.00 a month to those who have had the two above courses, thus completing a two years' course.
4. A clinical course to general practitioners of any duration beginning any time.
5. An operative eye course of one week beginning November 3d.
6. An operative ear, nose and throat course of one week beginning November 10, 1924.

Details may be obtained by applying to the Chicago Eye, Ear, Nose and Throat College, 235 West Washington Street, Chicago, Illinois.

ADVANCES IN THE UNIVERSITY

Reorganization of the department of pediatrics under Dr. Frederic Schlutz has been an outstanding development of the year in the Medical School. Dr. Schlutz comes to the University as a full-time professor, thus settling the status of this department, which had been a matter of some controversy. This arrangement looks forward in part to the time when the Medical School will have the Minnesota Hospital and Home for Crippled Children as a part of its plant, when the gifts of William Henry Eustis shall have been received in full. Results of the interest other donors have taken in the Medical School have come to fruition during the year in the beginning of construction on two hospital additions. These are the Todd Memorial Hospital, for eye, ear, nose, and throat cases, and the George Chase Christian Memorial Cancer Hospital. Both will be connecting units of the Elliott Memorial Hospital. They will be completed about a year hence. Due to this enlargement, Dr. L. B. Baldwin, superintendent of the hospitals, has been put on a full-time basis.

Much more than can be given here must be told of the year's additions to the physical plant of the University of Minnesota and of the development of plans for beautifying the campus. Most of these accomplishments have been the result of plans laid long ago, but just now matured. Among these has been the final removal of the Northern Pacific Railway tracks, leaving quiet and a considerable tract of property where formerly a gully, noisy with the rattle and roar of trains, had to be endured. The athletic Stadium, made possible by the gifts of many thousand loyal friends of the University, is approaching completion. It will be

used for the entire football schedule of the present autumn. The new University of Minnesota library, under construction for two years, is in shape to serve the student this fall, and work has been begun on the Administration Building, a unit in the original Comprehensive Building Program, for which the 1919 legislature voted funds. Other additions to plant that the year has seen placed in service have been the splendid new Experiment Station of the School of Mines, the new Electrical Engineering Building, and a Storehouse and Shops building that houses the many departments for self-service by which the institution is able to make a wholesome saving. Thanks to the care and study bestowed on plans for the Electrical Engineering building by members of the department and by architects, it is said to be the most effective laboratory yet erected for the purpose of collegiate instruction in that swiftly growing field.—Minnesota Chats, Vol. 3, No. 47.

IMPROPER SOLICITATION

Physicians throughout the state and possibly throughout the country recently received two lead pencils from an organization called the National Disabled Soldiers League, New York, with a strong appeal for a contribution of one dollar for the help of the disabled soldiers. The remark in the letter that it was the hope of the writer that no physician would be so mean as to keep the pencils and not contribute the dollar was a clever method of obtaining the desired results in many instances.

A clipping from the Disabled American Veterans Weekly dated Washington, August 15, and issued by General Hines, states in part: "You are advised that this organization does not have any standing before this bureau, and is not recognized in a co-operative relationship as are the American Red Cross, the American Legion, the Disabled American Veterans of the World War, etc. The Bureau would prefer not to comment on the form of solicitation concerning which inquiry is made, as it is at present the subject of investigation."

Further information has been given out by Adjutant Stafford King of the American Legion, Department of Minnesota, to the effect that "So far as I am able to ascertain, the National Disabled Soldiers League is organized for the purpose of securing moneys, and according to my information has no other purpose. It may be legally constituted or not, but in any event the time has not yet arrived in the United States of America when it is necessary to solicit funds for the actually disabled man by any such manner of solicitation. I would suggest that you take the necessary steps to inform your medical associates that this league deserves no constructive assistance."

NEW AND NON-OFFICIAL REMEDIES

The following articles have been accepted by the Council on Pharmacy and Chemistry:

MANHATTAN EYE SALVE COMPANY:

Butyn Ointment-M. E. S. Co.

Holocaine Ointment-M. E. S. Co.

Benzyl fumarate-Abbott. *Benzylis fumaras*.—It contains not less than 99 per cent of benzyl fumarate. Benzyl fumarate acts like benzyl benzoate and benzyl succinate in lowering the tone of unstriated muscle. Like benzyl succi-

rate, it has the advantage over benzyl benzoate in that, because of its insolubility in water, it is practically tasteless and does not produce gastric disturbance. It is employed in the same conditions as benzyl benzoate and benzyl succinate (see New and Non-official Remedies, 1924, p. 69 and 71). The Abbott Laboratories, Chicago.

Sulpharsphenamine-Metz.—A brand of sulpharsphenamine-N. N. R. For a discussion of the actions, uses and dosage of sulpharsphenamine, see New and Non-official Remedies, 1924, p. 56. Sulpharsphenamine-Metz is supplied in ampules containing, respectively, 0.05, 0.075, 0.1, 0.15, 0.3, 0.45 and 0.6 gm. The H. A. Metz Laboratories, New York (Jour. A. M. A., July 5, 1924, p. 41).

Mead's Cod Liver Oil.—It has a vitamin potency so that one-fourth of one per cent cures experimental rickets in rats in five days when added to the diet. For a discussion of the actions and uses of cod liver oil, see Useful Drugs, 6th edition. Mead Johnson and Co., Evansville, Ind. (Jour. A. M. A., July 12, 1924, p. 121).

Oleo-Bi (Roche).—A suspension of finely divided bismuth oleate in olive oil, containing bismuth oleate equivalent to 0.05 gm. of bismuth (Bi) in each c.c. Oleo-Bi (Roche) is proposed as a means of obtaining the systemic effects of bismuth in the treatment of syphilis (see Bismuth Compounds, New and Non-official Remedies, 1924, p. 74). Two c.c. are administered intramuscularly, preferably into the gluteal muscle, two or three times a week. Oleo-Bi (Roche) is marketed in the form of 2 c.c. ampules. The Hoffmann-LaRoche Chemical Works, New York (Jour. A. M. A., July 19, 1924, p. 195).

Butyn Ointment-M. E. S. Co.—Composed of butyn (see New and Non-official Remedies, 1924, p. 32) 1 per cent, water 1 per cent, wool fat and petrolatum 98 per cent. The ointment is put up in collapsible tubes for application to the eye. Manhattan Eye Salve Co., Louisville, Ky. (Jour. A. M. A., July 26, 1924, p. 271).

PROPAGANDA FOR REFORM

Purifico, a Cancer Cure Frau.—In 1917 the persons doing business as the Purifico Company pleaded guilty to the charge of the federal authorities that the claim that Purifico was an effective remedy for cancer and other conditions was false and fraudulent. Now a fraud order has been issued against the Purifico Company denying the firm the use of the mails. Analysis showed "Purifico No. 1" to be a watery, alcoholic, sugar mixture of cinchona, plant extractives, a vegetable laxative and potassium iodid. "Purifico No. 2" was a watery, alcoholic mixture of cinchona, plant extractives and potassium iodid. "Purifico No. 3" was a watery, alcoholic, sugar mixture of plant extractives, including valerian (Jour. A. M. A., July 5, 1924, p. 56).

"Cuprase—Chemical Colloidal Copper."—In 1919 the Council on Pharmacy and Chemistry reported on Cuprase, marketed by the Anglo-French Drug Co. It stated that the claims made for this preparation are those commonly made for "cancer cures," and held that these could not be too strongly condemned. The Council contrasted the loose statement of the Cuprase advertising with the results reported by Richard Weil, who was unable to find that colloidal copper had any therapeutic value. The Council declared the claims made for Cuprase extravagant and cruelly misleading (Jour. A. M. A., July 5, 1924, p. 59).

More Misbranded Nostrums.—The following products

have been the subject of prosecution by the federal authorities charged with the enforcement of the Food and Drugs Act: Smith's Buchu Lithia Pills (C. F. Smith), containing powdered licorice, extracts of plant drugs including uva ursi and podophyllum, sodium, potassium, lithium and magnesium compounds, including nitrate and citrate, and soap. Famous Mineral Well Water (Famous Mineral Wells Water Co.), adulterated water, consisting in whole or in part of filthy and decomposed animal or vegetable substances. Foley's Kidney Pills (Foley and Co.), containing potassium nitrate, methylene blue, hexamethylamin tetramin and plant material including resin and juniper oil. Ironglad Tonic Tablets (Sanitary Products Co.), containing an iron compound and material of animal origin. Remlock 300 (Remlock Hills Laboratory), consisting of 99 per cent water and 1 per cent calcium hypochlorite, calcium chlorid and calcium carbonate. Trask's Ointment (D. Ransom, Son and Co.), consisting of extracts of plants, including tobacco and lobelia, mixed with fat. Tubbs White Pine Cough Cure (The Tubbs Medicine Co.), consisting essentially of pine tar, extract of a bark, chloroform, sugar, alcohol and water (Jour. A. M. A., July 12, 1924, p. 138).

PROGRESS

Abstracts to be submitted to Section Supervisors.

MEDICINE

SUPERVISORS:

F. J. HIRSCHBOECK,
FIDELITY BLDG., DULUTH
THOMAS A. PEPPARD,
LA SALLE BLDG., MINNEAPOLIS

INDIVIDUAL CONSTITUTION VS. ENDOCRINE GLANDS: Julius Bauer (Buffalo General Hospital Bulletin, Oct., 1923). Those who did not have the opportunity of hearing Dr. Bauer during his visit to the Northwest, have the opportunity of reading his paper in the above noted periodical.

The author first remarks about the tendency to overestimate the important branches of science in the beginning of their development, also the attempts to clear up certain unexplained facts by means of the newly developing science, taking mere hypotheses for established facts.

Eunuchoid gigantism and eunuchoid obesity are two different types of abnormal development, which may be manifestations in primary hypogenitalism. Some other factors must determine the result and the general assumption is that the hypophysis and other ductless glands are the determining factors. If this is the case, how may borderline cases be explained?

The power of growth is a constitutional characteristic, transmissible by inheritance and must be localized in the germ cells. There may be present a high, moderate or a slight constitutional growth-power and as well, varying grades of glandular sufficiency.

The analogy between certain racial and individual peculiarities and the constitutional factor is made. The endocrines do not produce, but rather influence, augmenting or checking the chromosomal potency and not one but the total of all the endocrines combined with the constitutional

chromosomal reactivity of every body cell, determines the consequences of an endocrine trouble and the varied clinical symptomatology.

In conclusion the writer mentions experimental therapy with extracts of fetal organs, which have been seemingly satisfying.

T. A. PEPPARD.

THE MODERN TREATMENT OF TUBERCULOSIS OF BONES AND JOINTS: G. R. Girdlestone (Tubercle [London] 1924, v, 32). Twenty years ago tuberculous disease attacking the spine or hip only too commonly meant persistent pain, increasing deformity, sinuses profusely discharging, long months of suffering, lardaceous disease and death. Nowadays there is little excuse for delay in diagnosis or prompt admission to a special hospital. If admitted in good time the patient quickly loses all his pain, ceases to go down hill and starts the slow process of recovery. Although there has been a period of rapid progress, complete uniformity of method has not been secured. The leading special hospitals reflect the ardor of their genius loci whether he worship the sun or the Thomas tradition.

A bone focus is a proof of established tuberculous infection, but it is even more, for the new focus is tangible evidence that the invasion of the body is advancing. Now the enemy has had a great success and has got a new hold. Things are going wrong. It is, however, a fight in which we can join, and treatment has now become so effective that we can insure complete victory for our patient in almost every case. Relapsed cases are the result of lack of sufficient follow-up of discharged patients and disinclination on the part of those responsible to furnish funds for adequate treatment. A cure in our hospital register may be a very sick patient in another hospital's bed.

The aims of the treatment are general and local.

1. First to raise the patient's general vitality as quickly and as fully as possible.
2. Ultimately to restore the full health of the patient, who should be free from any signs of tuberculosis, focal or general, with his powers of resistance to the tubercle bacillus so raised as to enable him to repel any further attack.
3. The prompt elimination of any factor, such as strain or movement, harmful to the diseased part, and the application, so far as possible, of rest, comfort, warmth and stimulus to local circulation.
4. The avoidance of septic infection.
5. The restoration of the strength and function of the affected part.

These points are usually best achieved by prompt admission of the patient to an open-air Orthopedic Hospital. The virtues of sunlight and moving air should not induce us to relinquish the accuracy of our splintage. Operations may be helpful, or even essential to cure, but to consider them as short-cuts is a sin which will be visited on our patients. Rest and time remain the essential ingredients of our prescription.

Food must be adequate but not excessive.

As regards the action of the sun and the wind in tuberculosis, it is most unfair to both to consider them apart.

We want every bit of help we can get for our patients and we now know how to get help from the sun; but I am

not yet convinced that the advantage of pigment is other than protective.

The first step in heliotherapy is the carefully graduated exposure of the body in order to develop pigment; and until and unless pigment is developed, only a small dose can be tolerated, and more than a small dose is definitely harmful.

While the sun warms steadily, the wind cools variably. The sun saves the patient from undue cold, the wind from undue heat. The combination is pleasurable, and like a contrast bath it promotes an active hyperemia in the skin. The wind is itself a great stimulus to metabolism.

Wind and sun are heaven-sent partners, neither can be used to the best without the other. Together they work in ways far beyond direct heliotherapy as a source of health and vigor, they stimulate and cheer us all and particularly patients in open-air wards. Possibly, too, the partnership between sun and air may be more intimate than we know fully yet. One virtue of open-air wards may lie in the effect on our patients of breathing air which is often sunny as well as always fresh.

The splintage should:

- (1) Hold the parts accurately and comfortably in whatever position is chosen.
- (2) Not constrict the circulation in the affected part.
- (3) Not interfere with respiratory movements.
- (4) Allow exposure of the affected part to sun and air and as much exposure of the rest of the body as possible.
- (5) In spinal caries, we should allow full exposure of the back whenever necessary without risk of local strain or movement, and where bone destruction has made a local kyphosis inevitable and desirable for the sake of sound healing and stability, it should be minimized and localized and compensatory curves should be developed.

To open and drain a cold abscess is to commit a surgical crime. Dr Rollier put the matter thus—he labeled such a proceeding "catastrophic," and said it was "almost a condemnation to death, not at once, but in two or three years," and added, "we cannot struggle too much against it."

In conclusion. A tuberculous focus in a bone or a joint is the obvious part of a deep-rooted disease, serious in itself, crippling if there is delay, disastrous if there is neglect; but it is also evidence of tuberculous infection of the body which pre-existed but is now gaining the upper hand. On the other hand, modern treatment with its artistic use of rest, food and weather, if started in good time and kept up long enough, will almost always bring about a cure.

ARTHUR T. LAIRD.

THE RELATION OF BLOOD PRESSURE TO THE AMOUNT OF RENAL TISSUE: Hilding C. Anderson (Jour. of Exp. Med., May 1, 1924). Dr. Anderson presents his experimental work on rabbits, in which he produces renal insufficiency by removing or destroying approximately 70% of kidney parenchyma.

Estimation of urea-nitrogen and creatinine and blood pressure readings were made. The kidneys were examined in those rabbits which died. The feeding of the rabbits was taken into consideration.

These experiments indicate that a marked reduction of kidney substance in rabbits does not result in hypertension, even where prolonged insufficiency results.

T. A. PEPPARD.

SURGERY

SUPERVISORS:

DONALD K. BACON,
LOWRY BLDG., ST. PAUL
VERNE C. HUNT,
MAYO CLINIC, ROCHESTER

THE ETIOLOGY AND TREATMENT OF NON-TUBERCULOUS PULMONARY ABSCESS: W. Whittemore (Surg., Gyn. and Ob., April, 1924). Most cases of non-tuberculous pulmonary abscess follow the administration of general anesthesia in operations on the upper respiratory tract, in which material of some kind is aspirated into the lung. Pneumonia comes next in frequency and septic infarction next. There are many other less frequent causes.

The treatment in these cases consists of the following:

1. Expectant.
2. Artificial pneumothorax.
3. Bronchoscopy.
4. Operation.

Expectant treatment means general measures and gravity drainage by postural means two or three times a day. The number of cures effected by expectant treatment varies from 7 per cent to 51 per cent. This treatment can be safely continued so long as the patient improves, but surgery should be considered if improvement ceases or if the patient's general condition becomes worse.

Artificial pneumothorax may be employed in conjunction with postural drainage and should be continued over a period of from three months to a year. The presence of strong adhesions contraindicates and makes this treatment of little avail. Artificial pneumothorax is very valuable in determining whether or not adhesions are present and where. The dangers attending artificial pneumothorax are air embolism and rupture of an abscess with resultant empyema.

Aspiration through a bronchoscope in the hands of a specialist in early cases is sometimes successful, especially if a foreign body which was the primary cause of the condition is removed. Suggestion is made of this method of treatment in surgical cases which do not do well after operation.

In general, if there is a large amount of foul sputum, marked general sepsis and the abscesses are situated in the periphery of the lung with a demonstrable fluid level by x-ray, operation is indicated and is usually attended by favorable results. In cases in which no improvement occurs in 4 or 5 weeks, or if the general condition becomes worse, operation is indicated. The operative procedures in cases in which adhesions are present should all be done under local anesthesia and consist of opening into the abscess with the finger and instituting drainage with a very soft rubber tube. In cases in which there are no adhesions, the pleural cavity is explored to locate the abscess by palpation and the area is fixed to the chest wall with sutures, leaving a gauze pad over the abscess itself. This is done under some form of differential pressure anesthesia. The one preferred by the author is gas and oxygen through a

snug mask. In five days the wound can be reopened and the abscess opened as described.

Acute abscesses should be drained four or five weeks or longer and the chronic cases may have to be drained from three to six or more months.

From 60 to 70 per cent of the cases operated on can be permanently improved or cured. Five per cent die from hemorrhage after a few months.

W. P. HERBST.

SURGERY OF THE THORAX: D. B. Phemister (Surg., Gyn. and Ob., April, 1924). The factors that bring about expansion of a collapsed lung in acute empyema with drainage, where stabilization of the mediastinum has occurred are:

1. The pull of the contracting granulations on the visceral pleura at its reflection onto the parietal pleura as the two layers fuse, and the cavity is gradually obliterated.
2. The positive pressure within the collapsed lung produced by the entrance of air from the opposite side during forced expiration.
3. The negative pressure in the empyema cavity present during inspiration, when the diameter of the drainage opening is smaller than that of the main bronchus on the affected side.

The first factor is the most important. The creation of the most favorable conditions for wound healing should receive first consideration in treating this condition. Simple drainage is essential and the tube cannot be left in too long. Fibrin in the pleura is objectionable only in that it is partly replaced by granulations which thicken the pleura. Irrigation in acute empyema is only indicated when there are sloughs and where there is a large amount of fibrin.

W. P. HERBST.

PEDIATRICS

SUPERVISORS:

CHESTER A. STEWART,
LA SALLE BLDG., MINNEAPOLIS
ROY N. ANDREWS,
MANKATO CLINIC, MANKATO

X-RAY TREATMENT OF PERTUSSIS: R. R. Struthers (Canadian Medical Association Journal, February, 1924), (Arch. of Ped., May, 1924). Struthers reports a series of 45 cases treated in Montreal in three months. The first cases were treated by short exposures every other day for two or three treatments; most cases were treated by a large single exposure. Of the 48 cases, 7 showed prompt cure, the whooping and vomiting ceasing usually within 24 hours and not returning. Twenty cases or 45 per cent were relieved, showing amelioration of symptoms, within four or five days. Eighteen cases or 40 per cent were not improved appreciably. Conclusions are: 1. The larger the dose of the ray the greater the apparent improvement; all the prompt cures except one received the larger dose. 2. The earlier in the paroxysmal stage the treatment is given the greater is the probability of relief.

R. N. ANDREWS.

CAUSES AND TREATMENT OF OTITIS MEDIA, OBSERVATIONS ON TWO HUNDRED AND THIRTEEN CONSECUTIVE HOSPITAL ADMISSIONS: David T. Smith (*Amer. Jour. of Dis. of Child.*, July, 1924). In 613 admissions, 33.4 per cent of the children either had otitis media when they came in or developed it while in the hospital. The race and sex of the patient seemed to have no relation to the incidence of the disease. There was a definite seasonal variation. In February, 47.3 per cent of the patients had otitis media; in July only 23.6 per cent of the children were attacked. The most susceptible period was between the ages of 3 and 15 months. In this group more than 50 per cent of the children had otitis media. Patients with pneumonia, dysentery, nasal diphtheria, pertussis and pyelitis developed otitis media in 50 per cent or more of the cases. Those with the condition of prematurity, nephritis and the noninfectious diseases showed ear infections in less than 21 per cent. Hemolytic streptococci were isolated from the aural discharge in 56 per cent of the fifty cases cultured.

Practically all the gram-negative bacteria found in the ears of patients suffering from otitis media, except pyocyanus bacilli, are killed by an 0.5 per cent solution of sodium hydroxy-mercuri-benzophenone sulphonate. One of the difficulties with the ordinary method of treatment is the fact that only the external canal is treated; the organisms in the middle ear are not reached. After trying a number of solutions it was found that ordinary commercial hydrogen peroxid diluted one-half with water was the most efficient irrigating fluid. An ordinary medicine dropper with a good stout rubber bulb is the most useful and practical instrument to use. The peroxid liquefies the pus and at the same time serves as an indicator of the presence of more pus. So the mothers and nurses were instructed to irrigate the ears until the peroxid no longer frothed. After the irrigation, the excess of fluid in the external canal was removed by swabbing with a little cotton. After this the antiseptic penetrates into the middle ear and attacks directly the organisms responsible for the discharge. Not a single case of mastoiditis developed in a series of seventy-five acute and chronic cases which were irrigated with this solution.

Pyocyanus bacilli are readily eliminated by treatment with 2 per cent acetic acid, or preferably with 0.5 per cent of the sodium solution which contains 2 per cent acetic acid. It was found that acetic acid could be combined with the sodium solution. Enough glacial acetic acid was added to the 0.5 per cent sodium solution to make a 2 per cent solution of acetic acid. This solution was just as efficient in killing bacteria of the colon group as the sodium solution alone, and it killed pyocyanus in higher dilutions than acetic acid.

All the gram-positive bacteria found in otitis media are readily killed by gentian violet except streptococci. Neutral acriflavine has been proved more potent in the treatment of otitis media associated with streptococci, but even this drug is not entirely satisfactory. Twenty cases of chronic otitis media were cured by local chemotherapy in an average of seven days each. Sixty cases of acute otitis media were cured in an average of thirteen days each.

R. N. ANDREWS.

THE CLINICAL VALUE OF THE ROUTINE EXAMINATION OF BLOOD SMEARS IN THE DIAGNOSIS OF PERTUSSIS: A REPORT OF 300 CASES: Henry Holman (*Arch. of Ped.*, June, 1924). Thus far but little has been accomplished in diminishing the incidence or severity of whooping cough. Pertussis vaccines have proven to be of little value either in the prevention or cure of the disease. The intracutaneous reactions for testing immunity have not been successful. One of the chief obstacles at present in preventing the spread of whooping cough is the difficulty of early diagnosis. From this viewpoint, the author presents the results of the examination of blood smears in 300 cases of pertussis and pertussis suspects from private practice, observed during the past five years.

Frohlich found a constant leucocytosis and lymphocytosis but concluded that the blood examinations were of no great value because the changes did not appear early enough in the disease. Churchill, from blood examinations of 36 patients, concluded that there was a lymphocytosis in 85 per cent of the cases. Ashby studied 100 cases of whooping cough and says: "Thus if a child who has been known to have been exposed to the infection of whooping cough starts with a cough, a blood examination will very likely show whether it is going to be whooping cough and then isolation can be undertaken early."

In the author's study of 300 cases of whooping cough and whooping cough suspects, his aim was to perform the simplest, most rapid blood examination in order to make it a more general routine procedure in private practice. He based his test only on a relative lymphocytosis. No total white blood counts were done to determine the leucocytosis present. A blood smear was taken in each case and stained with Jenner's dye. One hundred white cells were counted and for practical purposes a simple division, including only polynuclear cells and lymphocytes, was made. The eosinophilic leucocytes were included in the polynuclear and the transitional cells in the lymphocyte counts. Small and large lymphocytes were grouped together. The entire procedure takes but a very few minutes and can be performed in the course of routine office examinations on all suspicious cases. The common "cold," nasopharyngitis, bronchitis and laryngitis do not show this lymphocytosis.

The results of the examination of blood smears in 300 cases of pertussis have been presented, not to demonstrate any new and positive method for diagnosis, but to emphasize the almost constant occurrence of lymphocytosis as a very useful aid in the early detection of this serious infection of childhood. The procedure is simple and rapid and may be employed in the routine examination of all suspicious cases.

R. N. ANDREWS.

MENINGEAL HEMORRHAGES IN THE NEW-BORN AND THEIR REMOTE CONSEQUENCES: Alfred Gordon (*Am. Jour. of Dis. of Child.*, April, 1924). The cause of meningeal hemorrhages is, principally, the tearing of the membranes due to their overstretching, which leads to rupture of the blood vessels. To produce a tear, there must be cranial stress. Since the latter is frequently the result of protracted, difficult labor, with instrumental delivery, the obstetrician should bear in mind that the force used in the application of forceps should not be excessive.

or should not be applied to the wrong diameter of the head, as, for example, the anteroposterior diameter. Forceps are useful, and in many instances have been responsible for saving lives, but they may also be responsible for injuries in the fetus leading to consequences which have a direct bearing on the later physical and mental development of the child.

The preventive aspect lies in the consideration of all forces that are liable to lead to tearing of the meninges and the blood vessels. Wrong presentation and position of the fetus and other causes of difficult labor, such as prolapse of umbilical cord, the use of instruments or various manipulations in the delivery of the fetus, are all factors that cannot be overestimated in the production of cerebral hemorrhages and the tearing of the meninges.

Besides the preventive phase, consider briefly the therapeutic aspect of meningeal hemorrhage. With a certain degree of possible errors, supratentorial hemorrhages, generally speaking, present a somewhat different clinical picture from the infratentorial type. In the former, the blood spreads over the hemispheres of the cerebrum; in the latter, over the hemispheres of the cerebellum but also into the medulla. In the former, the blood cannot go beyond the lower surface of the tentorium; in the latter, the blood reaches the subarachnoid space and may extend into the spinal canal.

For these reasons, in the supratentorial hemorrhage at birth, one finds a bulging fontanel and a group of nervous phenomena, such as sleeplessness and great restlessness and convulsive seizures. In infratentorial hemorrhage, there is considerable depression, apathy, somnolence, early cyanosis, vasomotor and respiratory manifestations and rigidity of the neck muscles. In view of the anatomic differences, respiratory and other bulbar disturbances will not be observed in the cases of supratentorial hemorrhage.

Cyanosis is late in appearing and, when it does appear, is not pronounced in the supratentorial hemorrhages, but is early and very pronounced in the infratentorial cases; the anterior fontanel is at once bulging and early in appearance in the supratentorial, but slowly distending in the infratentorial cases. For anatomic reasons, in infratentorial cases lumbar puncture may be of considerable benefit. In the supratentorial cases lumbar puncture does not avail much, as the blood cannot reach the subarachnoid cavity easily.

Cushing, who obtained four complete recoveries in nine cases, is of the opinion that no hesitation should exist in operating on such young infants, in view of the fact that the new-born can withstand cranial operations better than any other operation and that much less traumatism is created by an operation than by the passage of the head through the pelvis during birth.

R. N. ANDREWS.

HEMORRHAGE OF THE NEW-BORN: Floyd Clarke (Arch. of Ped., May, 1924). Schloss and Commiskey have classified hemorrhage in the first few days of life as follows:

- (1) Traumatic—from obstetrical or surgical procedure.
- (2) Accidental—illustrated by insecure tying of the cord.
- (3) Spontaneous—without apparent cause.

Frequency:

Warwick, in a series of autopsies on new-born infants, found cerebral hemorrhage in 50 per cent of one series, and 42 per cent in another. She also found hemorrhagic disease of the new-born accompanying cerebral hemorrhage in 20 per cent of her series. In the Boston Lying-In Hospital, cerebral hemorrhage occurred once in every 300 deliveries.

Cause:

Trauma, due to a faulty application of forceps, or to some complication of a difficult labor, is well recognized. Another factor is intrauterine asphyxia, thereby raising the fetal blood pressure. There exists also a definite disease, viz., hemorrhagic disease of the new-born. In this peculiar disease, limited to the first few days of infancy, there occurs a deficiency of prothrombin, in the blood, and a prolonged coagulation and bleeding time.

Diagnosis:

These infants have a peculiar sharp cry, the fontanel is frequently bulging, they are spastic, disinclined to nurse, and occasionally have convulsions. In hemorrhagic disease of the new-born, the blood is usually apparent, the baby exsanguinated and in shock.

Prophylaxis:

The author believes that the mortality from hemorrhagic disease of the new-born would be less if every new-born babe were given a routine test as to his blood coagulation and bleeding time.

Treatment:

Repeated lumbar punctures may be done to help in decreasing the intracranial tension. Depending on the location of the hemorrhage and its extent, surgical procedure should be resorted to. In hemorrhagic disease of the new-born, the injection of whole blood is curative. Thirty c.c. of blood should be injected at one time and repeated as evidenced by coagulation and bleeding time tests, or by the appearance of blood. Rodda asserts that if the injection of blood from one donor is not curative, a second donor's blood should be used. It can be injected intramuscularly, intravenously or intraperitoneally with complete success.

About a year ago Dr. G. F. Still of London made the statement to a number of us that he considered gelatin given by mouth as valuable in the treatment of hemorrhagic disease of the new-born as the injection of blood. His opinion is of value.

R. N. ANDREWS.

ROENTGENOLOGY

SUPERVISORS:

LEO G. RIGLER,

MPLS. GEN'L HOSPITAL, MINNEAPOLIS

A. U. DESJARDINS,

MAYO CLINIC, ROCHESTER

THE ROENTGENOLOGIC DIAGNOSIS OF DIAPHRAGMATIC HERNIA WITH A REPORT OF SEVENTEEN CASES: Carman and Fineman (Radiology, v. 3, p. 26, July, 1924). Seventeen cases are reported in considerable detail.

The following conclusions are derived from this study:

1. Ordinarily diaphragmatic hernia may be easily demonstrated on roentgenologic examination but failure occasionally occurs on the first examination. This may be explained on the basis of the following factors: (a) that it develops as a sequel to paradiaphragmatic purulent processes, trauma, or lacerations; (b) that spontaneous temporary reductions may occur; (c) that only one of a double hernia may be demonstrated; (d) the opaque medium may not pass through the opening due to strangulation or position; (e) solid viscera may be the only contents of the sac so the administration of opaque media will not reveal it.

2. Hernia of the kidney may be demonstrated by pyelography.

3. Diaphragmatic hernia must be distinguished from mechanical elevation and true eventration of the diaphragm, hour-glass stomach, and esophageal diverticulæ.

4. It is important to determine the length of the oesophagus to rule out the cases of congenital short oesophagus which are inoperable.

5. Chest symptoms often lead to roentgenologic studies but frequently the condition is mistaken for other chest diseases before the use of the opaque medium.

6. An attempt should be made to ascertain the exact site of the hernial opening in order to direct the surgical approach.

Numerous illustrations are given, particularly to demonstrate the roentgenologic appearance of the chest in diaphragmatic hernia, without the use of the opaque medium, and to compare it with other chest conditions.

The bibliography is of great value.

LEO G. RIGLER.

SOME CONSIDERATIONS IN THE TREATMENT OF CARCINOMA OF THE ESOPHAGUS: Quick (Am. Jour. Roent. and Radium Therapy, May, 1924). Carcinoma of the esophagus up to the present time is fatal in practically 100% of the cases. This may be partially due to failure to recognize the disease in its early stages, and partially to the resistant character of the tumor and its inaccessability. Dysphagia is one of the earliest symptoms. Frequently growths are overlooked in the roentgen examination and early esophagoscopy is urged.

The treatment is only palliative. Torek's successful surgical removal is the only one on record. Lilienthal's direct exposure by surgery may aid in the treatment by permitting direct radiation to the tumor.

The author has observed 196 cases in the past seven years. The first of these were treated by direct application of small doses of radium through the esophagoscope, which are very effective in controlling ulceration and hemorrhage. The growth of the tumor is not affected. Intraesophageal application of larger doses causes swelling and obstruction. External uses of massive doses by means of the radium pack is impractical. The best method is high voltage roentgen ray, which in his experience adds years to the patient's life. Direct application of small doses of radium is used in combination.

Quick advocates very emphatically external gastrostomy at the very onset of symptoms. Gastrostomy late in the disease is usually fatal. He believes it should be done at once even if obstruction is minimal, as it is imperative to keep up the patient's nutrition. In their last cases the combination of early gastrostomy and high voltage roentgen therapy has resulted very favorably.

LEO G. RIGLER, M.D.

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Andersen, Silas Carl.....	U. of Minn., M.B., 1924.....	2420 33rd Ave. S., Minneapolis
Bieter, Raymond N.....	U. of Minn., M.B., 1924.....	2015 Dayton Ave., St. Paul
Buscher, Julius	U. of Kiel, Ger., 1919.....	830 University Ave., St. Paul
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deCarle, Donald Wilson.....	U. of Minn., M.B., 1924.....	429 Union St., Minneapolis
Ebersson, Frederick	U. of Minn., M.B., 1924.....	U. of Minn. Med. School, Minneapolis
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Frost, Russell H.....	U. of Minn., M.B., 1924.....	Willmar, Minn.
Goblirsch, Andrew Peter....	U. of Minn., M.B., 1924.....	Wabasso, Minn.
Greenfield, Arthur William...	U. of Minn., M.B., 1924.....	917 21st Ave. S. E., Minneapolis

<i>Name</i>	<i>School and Date of Graduation</i>	<i>Address</i>
Griffith, Wm. Hugh.....	U. of Minn., M.B., 1924.....	603 Delaware St. S. E., Minneapolis
Groschupf, Theo. Paul.....	U. of Minn., M.B., 1924.....	329 Union St. S. E., Minneapolis
Hargreaves, John Morris.....	U. of Minn., M.B., 1924.....	629 Washington Ave. S. E., Minneapolis
Howard, Marshall Ignatius...	U. of Minn., M.B., 1924.....	Sherburn, Minn.
Hochfilzer, Johann	U. Innsbruck, Austria, 1919.....	1237 Lowry Bldg., St. Paul
Jensen, Alvah Henry.....	U. of Minn., M.B., 1924.....	Hutchinson, Minn.
Johnson, Walter Royle.....	U. of Minn., M.B., 1924.....	3200 18th Ave. S., Minneapolis
Just, Herman Joseph.....	U. of Minn., M.B., 1924.....	General Hospital, Kansas City, Mo.
Larson, Leonard Morgan.....	U. of Minn., M.B., 1924.....	603 Delaware St. S. E., Minneapolis
McGranahan, Jas. Henry.....	U. of Minn., M.B., 1924.....	Alameda Co. Hosp., San Leandro, Cal.
McKinnon, Angus A.....	U. of Minn., M.B., 1924.....	603 Delaware St. S. E., Minneapolis
Meyer, Herbert Chester E.....	U. of Minn., M.B., 1924.....	General Hospital, Minneapolis
Mills, James Theo.....	U. of Minn., M.B., 1924.....	Wash. Blvd. Hosp., Chicago, Ill.
Myre, Clifford Russel.....	U. of Minn., M.B., 1923.....	3428 5th Ave. S., Minneapolis
Moe, Thomas	U. of Minn., M.B., 1924.....	1395 Chelmsford St., St. Paul
Nelson, Oliver Earl.....	U. of Minn., M.B., 1922, M.D., 1924	Gaylord, Minn.
Noble, Thos. Elwood.....	U. of Minn., M.B., 1924.....	So. Pacif. Hosp., San Francisco
Paul, Lester Warner.....	U. of Minn., M.B., 1924.....	General Hospital, Minneapolis
Peterson, Edward Nohl.....	U. of Minn., M.B., 1924.....	Ancker Hospital, St. Paul
Polczak, Jacob Anthony.....	U. of Minn., M.B., 1924.....	923 Marshall St., Minneapolis
Radl, Robert Bernard.....	U. of Minn., M.B., 1924.....	General Hospital, Minneapolis
Roust, Henry A.....	U. of Minn., M.B., 1924.....	Mankato, Minn.
Sanderson, Melville	Loyola, M.D., 1918.....	Minneota, Minn.
Scanlan, Jerome Edward.....	U. of Minn., M.B., 1924.....	Piedmont Apt., St. Paul
Schwyzer, Robert	Zurich, 1918	7th and Exchange, St. Paul
Smith, Ebenezer Knox.....	McGill, M.D., 1923.....	741 Quincy St. N. E., Minneapolis
Stomberg, Carl Winfred.....	U. of Minn., M.B., 1924.....	531 Walnut St. S. E., Minneapolis
Tangen, Geo. Martin.....	U. of Minn., M.B., 1924.....	General Hospital, Minneapolis
Thorson, Stuart John.....	U. of Minn., M.B., 1923.....	University Hospital, Minneapolis
Tollefson, Donald Gasman...	U. of Minn., M.B., 1924.....	Cal. Luth. Hosp., Los Angeles, Cal.
Trueman, Harold Spencer...	Leland Stanford, M.D., 1924....	St. Mary's Hospital, Minneapolis
Vik, Melvin	U. of Minn., M.B., 1924.....	St. Joseph's Hospital, St. Paul
Wilder, Robert Lawson.....	U. of Minn., M.B., 1924.....	Care of Walter Reed Hospital, Washington, D. C.
Young, Irving Henry.....	U. of Minn., M.B., 1924.....	211 Harrison Ave., Harrison, N. J.
Young, Nelson A.....	U. of Minn., M.B., 1923.....	N. P. Hospital, St. Paul

THROUGH RECIPROCITY

<i>Name</i>	<i>School and Date of Graduation</i>	<i>Address</i>
Bishop, Albert Henry.....	Chicago Homeo. Med., M.D., 1900	West Bend, Iowa
Grace, Frank Gaines.....	N. W., M.D., 1902.....	U. S. Vet. Hosp. No. 68, Minneapolis
Greene, Earle Ira.....	Rush, M.D., 1923.....	Rochester, Minn.
Heetderks, Dewey Ralph.....	U. of Mich., M.D., 1922.....	Rochester, Minn.
Lancaster, Wilson McArthur..	Western Med., London, Ont., 1909	Wahpeton, N. D.
Lundy, John Silas.....	Rush, M.D., 1920.....	Rochester, Minn.
McMahon, Maurice Jos.....	Creighton, M.D., 1923.....	Prior Lake, Minn.
Omohundro, Miles Parker....	U. of Va., M.D., 1922.....	Rochester, Minn.
Spencer, Noal W.....	Omaha Med., M.D., 1899.....	Sioux Falls, S. D.
Sporre, Knute Alexis.....	U. of Iowa, M.D., 1919.....	Harris, Iowa

BOOK REVIEWS

BOOKS RECEIVED FOR REVIEW

MANUAL OF DISEASES OF THE EYE. Charles H. May, M.D., Director and Visiting Surgeon, Bellevue Hospital, N. Y., etc. Eleventh edition, revised. 374 illus. including 23 plates, with 73 colored figures. Cloth, \$4.00. New York: William Wood and Company, 1924.

GOITER: NONSURGICAL TYPES AND TREATMENT. Israel Bram, M.D., Instructor in Clinical Medicine, Jefferson Medical College, Philadelphia. New York: The MacMillan Company, 1924.

CIRCULATION IN HEALTH AND DISEASE. Carl J. Wiggers, M.D., Professor of Physiology in the School of Medicine, Western Reserve University, Cleveland, Ohio. 641 pp. Second edition, 1923. Cloth, \$7.50. Philadelphia and New York: Lea and Febiger.

This very comprehensive and scholarly book deals with the physiology and pathological physiology of the heart and circulation.

The first portion of this work deals with the normal physiology of circulation. The properties of the heart, cause of the heart beat, nervous enervation, sequence of events, and blood pressure are gone into in a most searching and thorough analysis. Physiology of the pulmonary and peripheral circulation complete the first section.

"Graphic Methods for the Clinician" are considered next. These include the sphygmograph, phlebogram, electrocardiogram and the interesting but not so well known photokymograph. The questions of venous and capillary pressure are also included here. Apparatus, technic and clinical interpretation are very explicitly handled.

The last section, "Diseases of Heart and Circulation," applies the foregoing in a thorough review of symptomatology and diagnosis. The classification of abnormal cardiac rhythms is simple, clear cut and seems to us to be the most understandable of the classifications of this disorder.

Many graphs make even more attractive this extremely worth-while book.

BURTON ROSENHOLTZ, M.D.

PHYSIOTHERAPY TECHNIC: A Manual of Applied Physics. C. M. Sampson, M.D., formerly of the Physiotherapy Service, Walter Reed U. S. Army General Hospital, Washington, D. C., etc. 443 pages. 85 illustrations. Cloth, \$6.50. St. Louis: C. V. Mosby Co., 1923.

In reviewing this book one is impressed by the author's sincere enthusiasm for this comparatively young field of therapeutic medicine. His experience has been extensive, his results as claimed in his book and lectures most astonishing. The book contains many helpful suggestions and is indeed instructive; however, one must not lose sight of the fact that there are still other therapeutic agents equally important.

The chapters dealing with high frequency and diathermy give one a good working foundation for this special therapeutic agent. A thorough description of the apparatus and its application is discussed in a manner that is easily understood. In our experience conversive heat (diathermy) has a distinct place in therapeutic medicine. It is of great value in the after-treatment of fractures and sprains and wherever heat is indicated. It has a great advantage over other types of heat in that it will heat most distant parts. The author gives in detail a description of stimulative and sedative diathermy technic. Knowledge of the agent one is using is of primal importance to accomplish the best results.

Ultra violet light is a second great agent described in this book. It is very important and has a very definite place in medicine. More space in this chapter might well have been devoted to case illustrations, and the application of ultra violet ray in some of the more common diseases. The chapters on hydrotherapy and massage are important although somewhat abbreviated. The use of the various electrical modalities such as static, faradic and galvanic currents are described in some detail.

The book serves a definite purpose in that it brings before our profession the importance of physiotherapy and its agents. It emphasizes the fact that to accomplish results one must be familiar with the apparatus, its proper application and its limitation. It does give one a better knowledge of the material one is using.

A. E. FLAGSTAD, M.D.

WANTED—Location, assistantship or association with group in or near Twin Cities. University of Minnesota graduate, M. D., 1921; age 28, married, Protestant; eighteen months' internship; in present location two years; best references. Address C-2, care MINNESOTA MEDICINE.

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